AMERICAN BEE JOURNAL

JANUARY 1913

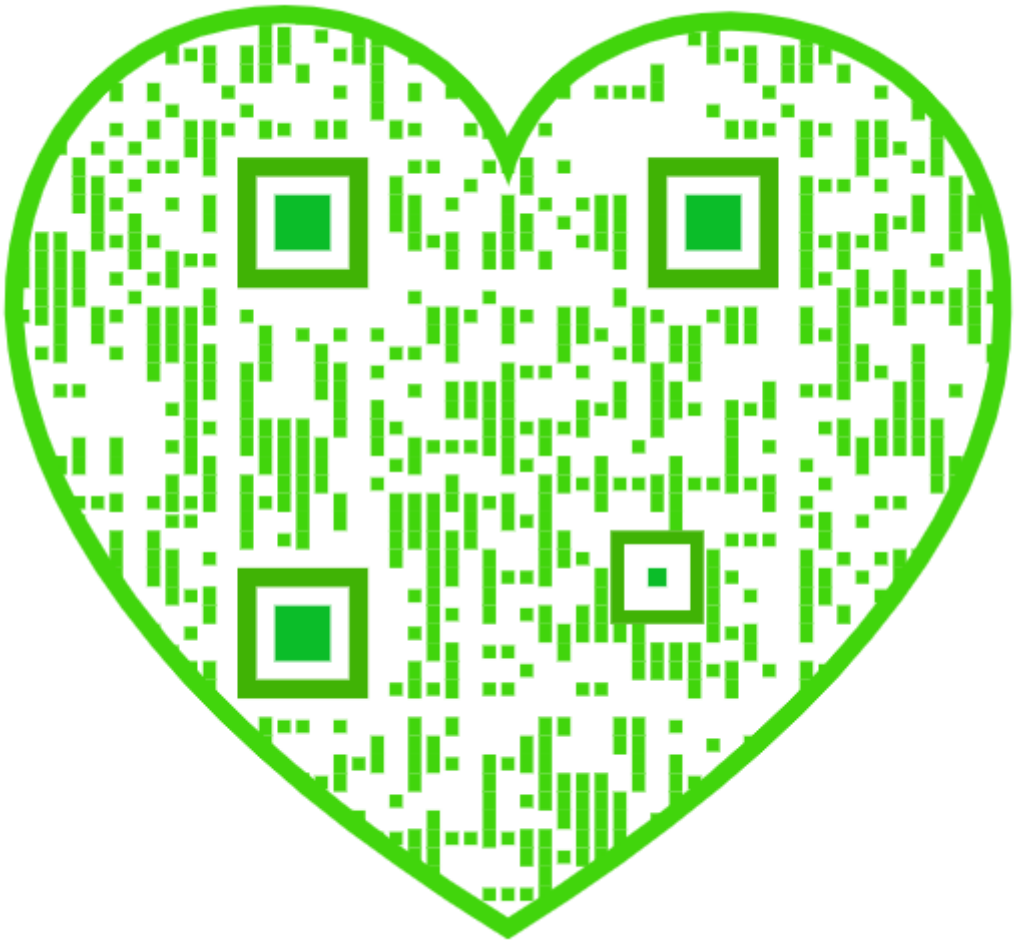
22,138

The Apiary Par-Excellence

Apiary of Wm. Babberger, Canon City, Colorado

From 25 to 45 colonies make up the apiary. One season he harvested 23,000 sections of No. honey from 25 colonies.

This photograph took second prize in our picture contest recently decided. See "Far West epartment."



AMERICAN BEE JOURNAL

ESTABLISHED IN 1861 — OLDEST BEE PAPER IN AMERICA

PUBLISHED MONTHLY BY

American Bee Journal

1st Nat'l Bank Bldg. Hamilton, Illinois

IMPORTANT NOTICE

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THE WRAPPER-LABEL DATE indicates the end of the month to which your subscription is paid. For instance, "dec12" on your label shows that it is paid to the end of December, 1012.

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By express or freight, f. o. b. Sandpoint, Idaho, at these prices: 5 pounds for 80 cts.; 10 pounds, $1.50; 25 pounds, $3.50; or 100 pounds, $13.00.

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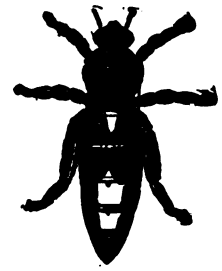
Booking Orders for 1913

Untested ITALIAN QUEEN-BEES



OUR STANDARD-BRED

6 Queens for $4.50; 3 for $2.75; 1 for $1.00

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Riddle, Oreg., July 4, 1912. L. W. WELLS.

AMERICAN BEE JOURNAL—
Gentlemen:—The queen you sent me came in good condition. She was one of the best I have ever bought. I have her introduced and she is doing business as if to the manor born. I want another of those beautiful queens as soon as I can possibly get it for making up my fair exhibit. Please send a fine one. Such queens certainly advertise your business.
Darlington, Wis., July 31, 1912. C. R. BRIDGMAN.

AMERICAN BEE JOURNAL—
Gentlemen:—I bought a queen of you about 35 years ago, and from her I italianized 1150 colonies of the finest beauties of unusual good qualities. I lived near Milton Center, Ohio, at the time. Yours truly,
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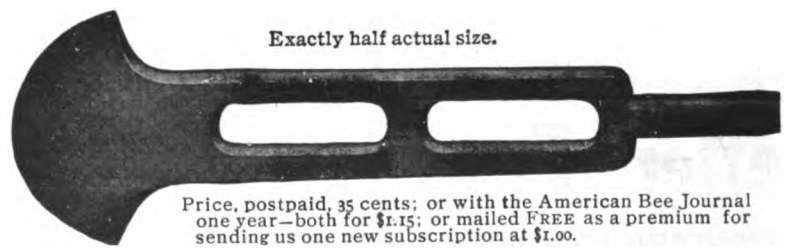
We usually begin mailing Queens in May, and continue thereafter on the plan of "first come first served." The price of one of our Untested Queens alone is $1.00, or with the old American Bee Journal for one year, both for $1.60. Three Queens (without Bee Journal) would be $2.75, or six for $4.50. Full instructions for introducing are sent with each Queen, being printed on the underside of the address card on the mailing-cage. You cannot do better than to get one or more of our fine Standard-bred Queens.

AMERICAN BEE JOURNAL, HAMILTON, ILLINOIS

The Ideal Hive-Tool Free as a Premium



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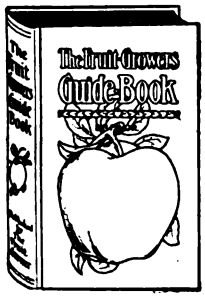
This is a special tool invented by a Minnesota bee-keeper, adapted for prying up supers, and for general hive and other work around the apiary. Made of malleable iron, 8½ inches long. The middle part is 1 1-16 inches wide, and 7-32 thick. The smaller end is 1⅞ inches long, ½ inch wide, and 7-32 thick, ending like a screwdriver. The larger end is wedge-shaped, having a fairly sharp, semi-circular edge, making it almost perfect for prying up hive-covers, supers, etc., as it does not mar the wood. Dr. C. C. Miller, who has used this tool since 1903, says: "I think as much of the tool as ever."

American Bee Journal, Hamilton, Illinois.

American Bee Journal

The Fruit-Growers' Guide Book



is a complete Encyclopedia of horticulture. It has 300 pages, and is well illustrated. All about spraying, fungicides, insecticides; how to can Fruits, Vegetables, etc. It was written for the man with a thousand trees, as well as for the one with a few trees in the dooryard. It is the result of years of study and travel.

The Fruit Grower, published monthly, is filled with up-to-date matter on horticulture.

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FRUIT GROWER, one year -	**1.00**
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Please mention Am. Bee Journal when writing.

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February and March deliveries—for Untested, $1.50 each; April, $1.25. Tested Queens, 50 cts. additional; Select Tested, $1.00 extra. Breeders, prices on application.

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Or Berkeley, Cal.

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Bees More Beautiful, More Gentle, More Industrious, The Best Honey-Gatherers.

Universal Exposition, St. Louis, HIGHEST AWARD.

Extra Breeding Queens, $3; Selected, $2; Fertilized, $1.50; lower prices, per doz., 50 or 100 Queens. Safe arrival guaranteed. Write

ANTHONY BIAGGI,
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Sample copies upon request.

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HOOD RIVER, OREGON.

White Sweet Clover Seed

Sweet Clover is rapidly becoming one of the most useful things that can be grown on the farm. Its value as a honey-plant is well known to bee-keepers, but its worth as a forage-plant and also as an enricher of the soil is not so widely known. However, Sweet Clover is coming to the front very fast these days. Some years ago it was considered as a weed by those who knew no better. The former attitude of the enlightened farmer today is changing to a great respect for and appreciation of Sweet Clover, both as a food for stock and as a valuable fertilizer for poor and worn-out soils.

The seed should be sown either in the fall or early in the spring. 20 to 25 pounds per acre of unhulled seed is about the right quantity to sow. We can ship promptly at the following prices for the white variety:

Postpaid, one pound for 30 cents, or 2 pounds for 50 cents. By express f. o. b. Hamilton—5 pounds for 90c; 10 pounds for $1.50; 25 pounds for $3.50; 50 pounds for $6.50; or 100 pounds for $12.00.

We can also furnish the yellow biennial seed. This variety blooms about two weeks earlier than the white which makes it preferred by some bee-keepers. For the yellow seed add one cent per pound to the above prices on the white variety. Seed will be shipped promptly on receipt of order.

American Bee Journal,

Hamilton, Illinois.

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You have probably desired, for a long time, some method of binding your American Bee Journal so that you could keep your back copies in a handy, convenient and readable form.

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MANN'S LATEST MODEL BONE CUTTER

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Free Book Tells How

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Published Monthly at $1.00 a Year, by American Bee Journal, First National Bank Building

C. P. DADANT, Editor.
DR. C. C. MILLER, Associate Editor.

HAMILTON, ILL., JANUARY, 1913 **Vol. LIII.—No. 1**

EDITORIAL COMMENTS

Encouragement

Our thanks are due to the Editor of Gleanings in Bee Culture and to a number of friends who have privately written complimentary letters on the present appearance of the American Bee Journal. We do not propose to spend time and take space singing our own praise, for deeds are better than words. We are highly gratified with the support we are securing.

Ventilation In Cellar Wintering

At the Toronto meeting, the question of cellar ventilation elicited considerable discussion. The climate of Ontario shows much variation, from the southwestern corner, which is almost as far south as the south line of Michigan to the northeastern limit, which is farther north than the north line of New York State. For that reason, the discussion was animated, and opinions varied. Mr. R. E. L. Harkness, who lives in the extreme east of the province, gave a very interesting account of his method of cellar wintering. He leaves his colonies in the cellar as late as May; once they remained until the 11th. He does not lose any bees, and finds most of them with two or three combs of brood, when brought out. All the ventilation he gives come through the door leading into the main part of the cellar, which is contigious to his bee-cellar. But his colonies are not piled in tiers, filling up all the available space, as with most of us. He has shelves, and the hives are placed on those shelves without any bottom-board. The number of cubic feet of unoccupied space is therefore greater than in most bee-cellars, where we place the hives in tiers of four or five. The result is that the temperature is more equable, and the need of active ventilation lessened. When colonies are piled in tiers there is a sufficient amount of heat developed to greatly increase the temperature. If ventilation is given from outside, there are possibly places where the degree may be lowered to 38 or less, while other spots are still too warm, owing to the emission of heat from the clusters. Mr. Harkness' method is therefore the best. It requires a larger cellar than most of us have been in the habit of using, but it evidently pays, in the long run.

Taking all things in consideration, ventilation of bee-cellars cannot be overdone, provided the proper degree of temperature is maintained. Cellar wintering becomes dangerous only where the outside temperature is so high that it is impossible to keep the cellar cool, or where the cellar is so poorly ventilated that the air becomes foul. It should be added, however, that although it is generally considered that the temperature in the cellar should not go above 45 degrees, yet a temperature of 50 degrees or more may be all right provided there be a constant flow of fresh air.

If the cellar can be kept cool enough to maintain quietude, authorities agree that it is best to keep the bees in until the soft maple is in bloom, so they may go to work gathering pollen as soon as taken out.

A Profitable Crop

The Kansas Industrialist, published by the Agricultural College of Manhattan, gives, in its nnmber of Nov. 2, the record of a yield of $27 worth of honey from one colony, produced in the apiary of Wm. R. Lewis. His 10 colonies gave him $150 worth in all for the season.

Advertising Honey

One of the most profitable things for advertising honey locally is a public demonstration with a hive of bees or a single comb in an observing hive. A demonstration of this kind, with full explanations, made in front of a grocery at Guelph, Ont., attracted so large a concourse of people that the street was blocked to traffic for a while. *Field days* for apiary demonstration, when extracting honey, if properly advertised, will attract hundreds of people, who will thereafter gain confidence in the producer who thus discloses the secrets of the bee-hive to the consumer. Too little is known of our industry by the masses.

Comb vs. Extracted Honey

Not so very long ago there was a cry that more attention should be given to extracted honey. Producers of comb honey were made to feel that perhaps they were making a mistake, and no doubt some of them seriously considered the question whether it might not be to their interest to change from comb honey to extracted. That was only a year or two ago. Now comes a cry of an opposite character. "The demand is for comb honey, bee-keepers should realize that extracted is a drug

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on the market, and should see that the demamd for comb is supplied."

This is a little confusing. "Has there been so much change in so short a time? and if so, why?" are questions easily asked, but difficult to answer. Without attempting a full answer, we may at least consider one phase in the case, the market reports, although it is possible, even with plain figures, to make wrong deductions. Suppose we compare the reports of September, 1910, with those of the same month in 1912, taking in each case the highest quotation of those who quote by the pound in the market reports of the American Bee Journal. In 1910 the average price of comb honey was 77 percent higher than that of extracted. In 1912 it was 67 percent higher. So far as these figures indicate, they show that in the past two years the price of comb honey, as compared with extracted, instead of rising, has fallen.

A Visit to Ontario

On Nov. 11, the Editor started for the Ontario Bee-Keepers' Convention at Toronto. The Ontario Agricultural College at Guelph was visited, *en route*, and a very pleasant day was spent with the apiary students and teachers who showed us the well-known trait of Canadian hospitality.

The college apiary is composed of only a few colonies, but great care was taken of them for wintering. The hives, gathered in groups of four, are packed in large outer cases, with warm absorbents, one entrance on each side of the case.

An hour or two spent in the office of the Provincial Apiarist, Mr. Pettit, indicated the methodical manner in which the bee inspection is conducted in Ontario. The card system is used. Every bee-keeper visited during the season is recorded upon a separate card, which shows the number of colonies he possesses, the style of hive used, the condition of the bees at the time of the visit, the race of bees, etc. By this method the central office will, after a few years, possess an exact record of the state of bee-culture in the Province. Of course, the changes must be noted, but the most difficult work is surely in getting the original record established. Centers of infection of disease will be clearly delineated, and the planning of inspection work made more easy, as the task continues. Another very good plan for success in eradicating foul brood is that of having two blanks, for report by the deputy inspector and the apiarist. The deputy fills out the first blank, and upon it is an agreement to treat the diseased colonies with a specified time, which the apiarist is required to sign. The second blank is a statement which he is to date, sign and forward, that he has treated the diseased colonies as per promise. This acts as a reminder, and I am told that they are much less likely to defer or neglect treating their bees when they know that an account is kept of the work through this method. The inspectors who do not have some such plan would do well to write Mr. Pettit, at Guelph, for sample copies of these blanks.

The meeting at Toronto was well attended, probably as many being present as in the largest State meetings on this side of the line.

Synopsis of the meeting is given elsewhere in this Journal. Two things loomed up in the mind of the listener.

The alarming European foul brood is not much feared by the man who keeps pure, active Italian bees. From all sides came the assertion that black bees are unable to cope with the disease as do the Italians. Whatever might be the differences of opinion on the methods to pursue in inspection, no one differed in regard to the advisability of keeping a good breed of Italians.

The other great point brought out is the gain of co-operation. The Ontario bee-keepers have a honey-sale's committee, and we gleaned, from the statements made, the evidence that by each apiarist reporting the amount of his crop to this committee, the members became informed of the extent of the crop. Following the advice of this committee, the price was maintained, and none of the members present secured less than 12 cents per pound for their extracted honey, when a few years ago many sold it as low as 8 cents. We may well look up to our Canadian friends for example in this matter. The United States cover a much larger territory now, but there is no reason why co-operation cannot be secured as well in a large field as in a comparatively small one.

By rising early on the morning of the second day, we were enabled to visit the Ontario Horticultural Exhibit, at the beautiful exhibition grounds, on the shore of Lake Ontario. We have seen nothing finer anywhere, in fruit, apples, pears, etc., in vegetables and in honey. Two large pyramids of honey were conspicuous, mainly extracted honey, for this is the staple product of Canadian apiarists. Middlesex county, represented by six exhibitors, had the most dainty display that we have ever seen anywhere.

Freight Rates and Honey

We call the attention of our readers to the article bearing this title in our contributions. Mr. Smith is a railway agent and speaks knowingly. The railroad managements are often to blame for arbitrary rates, charging much more for a short haul where there is no competition than for a long competitive haul. But Mr. Smith touches the weak spot in honey packing by the average bee-keeper, unless he has had long experience. Any one who has handled shipments of honey and beeswax from all parts of the country knows how often a package arrives at a destination without any marks whatever, or worse, perhaps with the name of a big soap or cereal firm which has not been erased from the box. If we desire to secure better rates, we should learn to pack our goods carefully, distinctly, and in accordance with schedules. Until we are careful ourselves we must not blame others for being careless.

Parcels Post

The new parcels post law is in force from and after the first of January. A few months' trial will most likely convince our retail trade that they are in no danger of losing their customers from this cause. The rates are still too high, and evidently aim to protect the Express companies; but this is an entering wedge, and we will soon catch up with other nations which have led us in this years ago.

The maximum weight that may be sent is 11 pounds, in one package. The rate for the 11 pounds is:

Within the delivery limits of your Post-office, 15 cents.

Within	50	miles,	$ .35	cents
"	150	"	.46	"
"	300	"	.57	"
"	600	"	.68	"
"	1000	"	.79	"
"	1400	"	1.00	
"	1800	"	1.11	"

For all distances greater than 1800 miles, the rate is the same as the international rate, or $1.32 for the maximum of 11 pounds.

But we are still above the international rate in "samples of merchandise." You may send samples of your goods in lots not exceeding 12 ounces to the end of the world, in the Universal Postal Union, for one-half cent per ounce, or 6 cents for the 12 ounces, with a minimum rate of 2 cents; but you cannot send the same package within the United States, in the third zone, less than 300 miles, for less than

American Bee Journal

7 cents, or one cent more than the international postage.

Four ounces of "samples of merchandise" will go to the end of the world for 2 cents, but the same package within the limits of our own rural route will cost 4 cents.

It is worse than ridiculous that the Japanese, or any other nation, be able to send us 4 ounces of samples for less money than we can send the same amount within our own town.

The people of the United States will not be satisfied with our postal law until we can deliver any postal matter *at least as cheaply within the limits of our own country as in the Universal Postal Union.* We are still behind all other civilized nations, in this respect. We owe it mainly to the graft of the express traffic.

Feeding Lump Sugar

Feeding lump sugar is good in many circumstances, but we suggest that, for spring, it is a better plan to dilute the sugar and feed it warm. There is very little danger of inciting robbing, for its odor is light. Warm and diluted food is of importance during the cool days of spring. It has a tendency to induce breeding, and this watery food saves the bees many trips to the water-trough. Many old bees are chilled at the season when they are of the most value, by trips in quest of water for brood-rearing. Some loss is avoided by the use of this thin, warm syrup. But for winter, dry food is best.

MISCELLANEOUS NEWS ITEMS

Iowa Bee-Keepers.—The first meeting of the Iowa State Bee-Keepers' Association, held in Des Moines Dec. 12 and 13, 1912, was a success in every way. Between 40 and 50 bee-keepers were present.

Besides the different addresses from bee-keepers at the meeting, talks were given by the State Entomologist and by Prof. Kennedy, of the Extension Department, both of whom gave every encouragement to bee-keepers towards securing what they want from the Legislature.

State grading rules for comb honey were adopted. The necessity for these was evident, as sections offered for sale on the Sioux City market were exhibited at the meeting, some of which contained less than 11 ounces of honey, and could not even be graded as culls. One section was shown which actually had scales of foul brood present.

The necessity for an appropriation to fight diseases was made plain. Iowa has now a very efficacious law, but no appropriation to carry it out. American foul brood is reported as present in at least 34 counties. In addition to an appropriation of $10,000 for inspection, the Association will ask for a chair in bee-keeping at the State Agricultural College, an extension lecturer, better premiums and facilities for exhibiting at fairs and an Assistant in apiculture under the direction of the State Entomologist, this Assistant to be State Inspector. Legislation will also be asked, prohibiting the transportation of bees from one county to another, or from other States without a certificate of inspection.

Demands for inspection became so insistent last summer that the Governor and the Executive Council sent Mr. Pellett through the State on tours of inspection, his expenses being borne out of the General Funds.

This shows that it is high time that the disease situation be immediately dealt with, in Iowa, with vigor.

This can be accomplished in only one way, the appointment of an efficient inspector and deputies with sufficient funds at their disposal that the work be not hampered financially. Every progressive Iowa bee-keeper must impress upon the representative and senator of his district the need of such appropriation. The Governor has already promised his support.

The officers elected for the ensuing year are: President, Frank C. Pellett, of Atlantic; Vice-President, J. W. Stine, of Salem; Secretary, S. W. Snyder, of Center Point; Treasurer, C. H. True, of Edgewood.

Directors—H. B. Miller, of Marshalltown, A. H. Bonney, of Buck Grove, E. C. Wheeler, of Marshalltown.

Redwood Lumber for Bee-Hives.—On page 237 of Gleanings in Bee Culture, April 15, 1912, M. D. Price speaks of buying hives made of redwood which were 15 years old, and were as sound as a dollar. Commenting upon this, Mr. H. Vogeler, of Oakland, Calif., sent us a newspaper clipping from the Saturday Bee, of Sacramento, which says:

"Redwood is easily worked, takes a beautiful polish, and is one of the most durable of the coniferous woods of California. It resists decay so well that trees which have lain 500 years in the forest have been sent to the mill and sawed into lumber. The wood is without resin, and offers a strong resistance to fire. Insects seldom injure it because of an acid element it contains."

"Redwood timber," says Dr. Hermann von Schrenk, of the Bureau of Plant Industry, "possesses lasting qualities scarcely equaled by any other wood. Although very light and porous, it has antiseptic properties which prevent the growth of decay-producing fungi. So far as is now known, none of the ordinary wood-rotting fungi grow in redwood timber. It is because of its resistance to most forms of decay that the redwood reaches such a great age."

Mr. Vogeler states that he has seen hives 40 years old made of redwood and as good as new.

Some one will say: How can they tell that a dead tree has been lying in the forest 500 years. We asked the same question when we visited the big sequoias. But the answer was at hand, for our attention was at once called to younger trees apparently of that age, and already six or eight feet in diameter growing right where the head of the giant must have struck in its fall. But the California climate is especially adapted to the durability of wood, for the rainy season is short.

When all is said, however, the redwood has wonderful lasting qualities. We see no reason why it should not be used extensively for hive making, since our white pine forests are rapidly disappearing.

Pecos Valley Meeting.—The members of the Pecos Valley Association met in annual convention at Roswell, New Mex., at 9 o'clock, Nov. 12, 1912, R. B. Slease, president, presiding.

About 2500 colonies of bees in Chaves county, and not far from that number in Eddy county, were represented.

Some of the leading orchardists of the section attended. Mr. Robert J. Beers, of Roswell, a very successful orchardist, spoke in the interests of apiculture, and recognized the honey-bee to be of great value in the growing of large and perfect crops of fruit.

R. B. Slease was for the fourth time elected President of the Association; Vice-Presidents, Henry Adams, of Greenfield, Edward Scoggin, of Hope, M. N. Cunningham, of Carlsbad. Secretary-Treasurer, Henry C. Barron.

The proposed amendments to the National constitution were approved except Section 3, Article IV, as it was deemed advisable to have all memberships fall due in January of each year, thus simplifying records.

Henry C. Barron was elected delegate to the National convention to be held at Cincinnati, Ohio, Feb. 12 and 13, 1913.

The matter of supplies was taken up and discussed to some extent. Spraying with arsenic while the fruit-trees are in bloom, was recognized by the bee-keepers as a great damage to the bee-industry. Several hundred colonies were killed in the spring of 1912, in the Pecos Valley.

HENRY C. BARRON, *Sec.*

Honey Selling in Australia.—Goodfellow's idea of marketing honey is to ship it to Sydney to an agent, part of whose business is to ship it to Goodfellow's own local storekeeper, to supply Goodfellow's own immediate neighbors, and to ship it to towns and villages, up the line, beyond Goodfellow's own railway station.

Now, dear editor, just say, "Look here Goodfellow, there are 5,000,000 people in Australia, and they have a gob apiece, and they are, every one, ready to stick good honey in it at a bigger price than they pay for the blackest of treacle or handsomest of golden syrup. Just you get busy and get the chap that lives alongside of you to eat honey; see that the folks in your near-by towns, and the people on the

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roadside, get the honey habit, and keep your products away from the big smoke, where they don't eat it, but try to sell it in just such out-back places as *you* live in. The prosperous people of our land can better afford to eat honey at decent prices than the poorer paid artisans, etc., of Britain and the 'Continong' can, and those same decent prices, plus extra packing, extra carrying and extra commissions."

Yours ever, G. R. HARRISON.
"Glen Havard," Ourimbah, N. S. W.
—*Australian Bee Bulletin.*

Portrait Photographed Through the Eye of a Bee.—Our readers know, as everybody does, that if you look into the eye of any one you will see your picture there. The British Bee Journal, in its Nov. 7 issue, gives an enlarged reproduction of a small portion of the eye of a bee, some 240 facets, with, in each of them greatly magnified, the face of Mr. James Bancroft, as photographed by Mr. Watson.

"To obtain a portrait of Mr. Bancroft was simple enough, as was also the procuring of a few of Mr. Bancroft's bees and dissecting some of their eyes; but setting up an eye so that the portrait could be seen through it and photographed was a somewhat different matter. First, a dissected eye had to be mounted so that it could be placed upon the stage of a microscope for observation. Next, a transparent positive, on a reduced scale of the portrait, had to be made to be seen through the eye. Then an apparatus was necessary for enabling a strong light to be thrown through the portrait and the eye, on to a sensitive photographic plate."

It must not be supposed that an insect sees separate images of objects, as repeated in each facet. Only one impression reaches the brain, as is the case with human beings, even though, in the case of the bee, several thousand impressions are made on the numerous facets of their compound eyes.

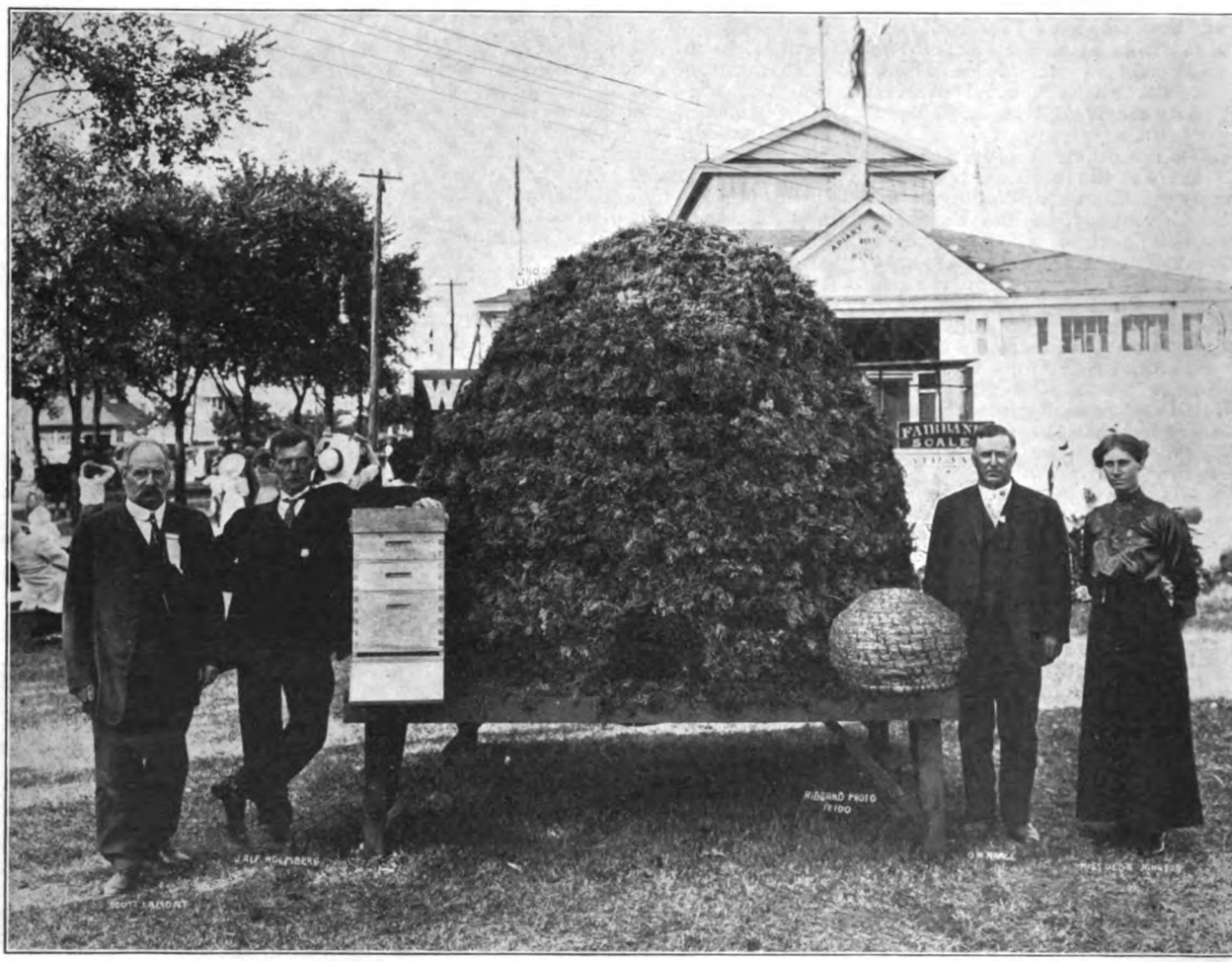
This article, in the British Bee Journal, is well worth, by its interest, the price of a year's subscription.

Shaking Bees Out of Box-Hives.—When bees are transferred from box-hives to movable-frame hives, the usual way has been to drum them out, making the bees run up into an empty hive placed over the full one. Now they are reversing the performance in Germany, where box-hives are still the common thing. An empty hive is placed upside down upon the ground, and the full hive over this. The two are strapped together, and then both are lifted and jarred upon the ground until the bees are shaken out. Of course, care must be taken not to jar hard enough to break the combs loose. It is said that this takes only a third as much time as drumming.

A New Honey-Strainer.—Most extracted honey, if strained at all, is probably strained through a single thickness of cloth. The difficult thing is to know just how fine a mesh the cloth should have. If it is coarse, particles of wax, etc., will pass through it. If it be fine, all the impurities, large and small, accumulate upon it, and in a little while it becomes clogged so that the honey passes through too slowly. Those of us who had opportunity to try the first extractors ever made still remember that the sieves provided at the bottom of these machines by the first manufacturers had to be removed because they clogged at once.

The illustration, given in Bienenwirtschaftliches Bienenzeitung, page 237, shows a strainer, invented in Germany, intended to overcome the difficulty.

It has three strainers. The upper one is quite coarse, taking out only the larger particles of foreign matter. The middle one is a little finer, and the



A large straw-hive imitation, with a modern hive and an old-time straw-skep, in front of the apiary building at the Minnesota State Fair, September, 1912. The small straw skep was furnished by N. E. France, judge of the Apiary Exhibit. Our readers are aware of the fact that Minnesota leads all other States in the amount of premiums paid for honey and apiary exhibits. At the left of the picture is Superintendent Scott Lamont, whose portrait we gave in the August number, page 233. The gentleman by his side is the State Apiary Inspector, J. Alf Holmberg. The lady on the right hand, Miss Johnson, was employed to do the apiary manipulations, which she did very creditably.

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lower one is fine enough to leave the honey entirely clean. With this arrangement a large amount of honey will pass through before there is any clogging. The lower one is the most inclined to clog, and so an extra lower strainer goes with each apparatus. The whole apparatus is 40 inches high, and the strainers are a foot in diameter. Each strainer may be taken out separately. It is called "Fix," "fix" being the German word for "quick." It sells in Germany for about $5.00.

Even with this improvement upon the initial methods, the work of straining thick honey is probably anything but "quick."

Manipulation of the Wax Scales by the Honey-Bee.—We received some time ago, from the United States Department of Agriculture, through the courtesy of Dr. Phillips, a pamphlet on the above-named subject, by D. B. Casteel, of the University of Texas. We found it so interesting that we tried to secure two of the cuts illustrating the subject. These we are unable to get. Those of our readers who may be interested should write to the Department of Agriculture and ask for Circular No. 161, Bureau of Entomology.

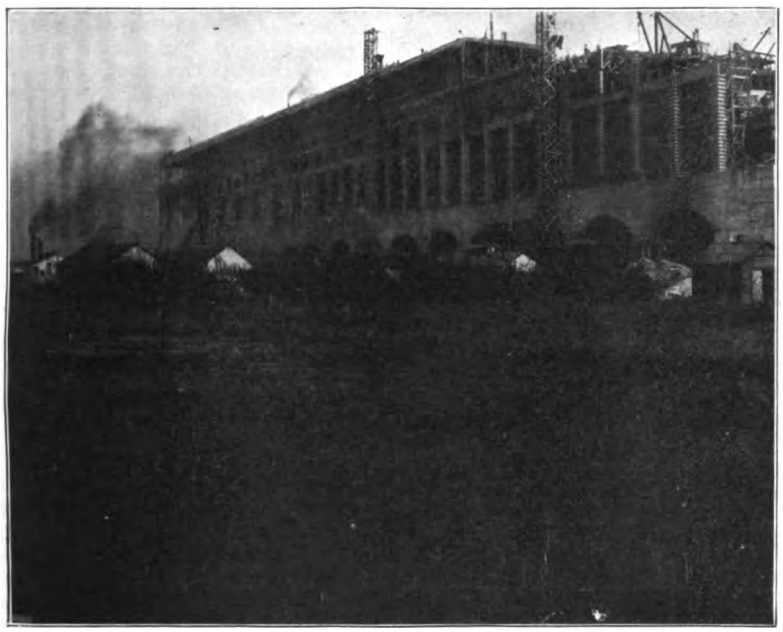
The Nyasa Bees.—The British Bee Journal contains a series of articles concerning the Nyasa bee. The Nyasa Land is situated west of Portuguese and German South Africa and east of Rhodesia.

These bees are smaller than the common honey-bee. The writer, L. W. J. Deuss, reports their cells to number 65.6 to the square inch, while our bees have only 57.6 in the same space. Their drone-cells number 49.2 per square inch, while ours have only 37, or a fraction under this. It appears, however from the report, that they can and do use without difficulty comb foundation as manufactured by the Weed process.

They build their homes in an improvident manner, "settling in the dry season where the rainy season will wash them out, or making their home in the rainy season where in the dry season the sun will melt their combs; in holes in the earth, between rocks, in the walls of houses, under a fairly dense bush, under a palm leaf in the open."

The color of these bees is very similar to that of the Italians.

Man's Handicraft and Nature's Provisions for Vegetation.—The accompanying picture shows the north half of the immense power plant now being built at the foot of the Keokuk bluffs, opposite Hamilton, for the big dam across the Mississippi River, just between the two cities. This photograph, which was specially taken for the American Bee Journal by courtesy of the Mississippi River Power Company, also illustrates the contrast of Nature's work and man's handicraft, to which few people have given a thought. This part of the Mississippi River bed, which is 12 feet, more or less, below the surface, was, for the first time in the existence of the stream, laid bare by the building and pumping out of a 35-acre coffer-dam in May, 1911. *Within two weeks after the water was pumped out*, honey-plants and weeds, such as sweet clover, persicarias, hearts-ease, Spanish-needles or bur-marigold, cockleburs, rag-weeds and aquatic plants sprung up spontaneously wherever man's foot did not trample.



THE RIVER BOTTOM IS A NATURAL SEED BED.

Think of it! This means that the entire bed of the mammoth Mississippi River, 1500 miles in length, and averaging more than a mile in width, must be at all times covered with drifting seeds which await only an opportunity to grow. Does this not indicate, better than anything else that we might mention, the plentifulness of Nature's provisions?

The magnificent structure in the background, of which only one-half shows in the photo, is the largest power house in the world, and is connected with the big dam shown in our issue of May, 1912. It is the work of Hugh L. Cooper, hydraulic engineer of imperishable fame. This work is next in magnitude to the Panama Canal, and is creating a lake 65 miles in extent in lieu of the shallow Des Moines rapids of the Mississippi. It will enable ships of greater draft than formerly to descend the Upper Mississippi to New Orleans, thence to reach Panama.

The 30 big arches at the base of the building, which are the intakes for the turbines of 10,000 horse-power each, will be completely submerged, and the river bed shown in the picture will then be 50 feet under water. The smaller buildings are temporary shops within the coffer-dam. The earth wall which hides the base of the buildings in the background was a temporary coffer-dam dividing the area originally into two sections.

A full view of the entire works, from the Keokuk bluffs, will be given in this magazine ere long.

Youth Restored to Joaquin Miller by Honey and Hominy.—Hominy and honey may once more be regarded as something good to eat. Joaquin Miller, the California poet, has made the dicovery. Upon the homely diet of his forefathers he has entirely recovered from his recent illness, and at the age of 75 years has undertaken what he considers the greatest poem he has ever worked upon.

The explanation has come in the announcement of his daughter, Juanita, that his diet for the past year has been restricted to hominy and honey. She says that her father has eaten it as often as three times a day, and during the past few months he has urged the food upon his visitors.

A large pan of the food has become a sort of an institution at the Miller home on the "Heights," back of Fruitvale. Questioned about his health, the poet declared that he never felt better in his life.

The poet is advancing the contention in his new poem that "God's way with man will not be done until these two seas are made as one," referring to the merger of the Atlantic and Pacific Oceans through the medium of the canal.—*Cincinnati Post*

Meeting of National Association Delegates.—Notice is hereby given that the Delegate meeting of the National Bee-Keepers' Association will be held in Cincinnati, Ohio, Feb. 12 and 13, 1913.

While *all* sessions will be open to the members and visitors, some sessions will be devoted *wholly* to business, through the delegates. At least one session each day will be set aside for the members to discuss such subjects as may be decided upon later, notice of which will be given out by the Secretary.

The subjects that will likely be selected for discussion will be of national

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character rather than pertaining to the production of bees and honey.

E. D. TOWNSEND, *Chairman.*

Remus, Mich., Oct. 1.

More About the Tin Section.—Replying to your invitation on page 327 of the November issue of the American Bee Journal, I beg to submit the following:

A most radical change was made in the production of comb honey through the evolution of the sanitary comb-honey package. The section holders have grooves, thoroughly protecting the side and edges of tin sections, so that cleaning them is avoided. The package keeps honey from harmful contamination, and reaches the consumer as inviting as it leaves the apiary.

The lithographed top with its celluloid disk will make the package a quick seller. Shipped at fourth-class freight rates in 50-pound containers made of corrugated paper, it will reach consignee in perfect condition, no leakage of honey, and every package salable for the highest market price.

The cost of production is the main question. The closest estimate at present on labor and material is that the package will cost about 3 cents more to produce and market than the wooden section. Each package should bring at least 5 cents more on the market than the wooden section.

PAUL HUNTEN.

Washington State Meeting.—Following is the program of a two-days' convention which will be held by the Washington State Bee-Keepers' Association Jan. 8 and 9, at North Yakima:

FIRST DAY—WEDNESDAY, JAN. 8.

MORNING SESSION, 9 A. M.

Meeting called to order by A. E. Burdick, President, after which annual reports of the President, Treasurer, and Secretary will be given.

10 a.m.—Address of Welcome by A. J. Splawn, Mayor.

Response by President A. E. Burdick.

Paper from Miss A. A. Byers, Chelan county.

AFTERNOON SESSION.

1:30 p.m.—"Spring management of bees," by Robert Cissna. Followed by discussion.

2:15—Address by George W. York, President National Bee-Keepers' Association.

3:00 p.m.—"Preparing bees for winter," by Virgil Sires. Followed by discussion.

Paper from C. P. Dadant, of Hamilton, Ill.

Paper from A. G. Kuykendall, of Grandview.

SECOND DAY—THURSDAY, JAN. 9.

MORNING SESSION.

9:00 a.m.—"Should we produce a larger percentage of comb honey?" by C. W. Higgins, of Wapato. Followed by discussion.

10:00 a.m.—"What has been the success of the Honey-Producers' Association in handling the 1912 crop?" by A. E. Burdick, President.

10:30 a.m.—"What benefits do the bee-keepers enjoy from the National Association?" by E. B. Tyrrell, Secretary National Association. Followed by discussion.

11:15 a.m.—"Should the manufacturers and bee-keepers be more in sympathy with each other?"

A paper from The A. I. Root Company, followed by discussion.

A paper from some bee-keeper of a scientific nature. Banquet at 12:00 m.

AFTERNOON SESSION.

Election of officers for the ensuing year.

2:00 p.m.—"My method of handling bees at swarming time," by Lee G. Simmons, Vice-President, Ellensburg. Followed by short discussion.

2:30 p.m.—"Weather conditions favorable for the secretion of nectar in bloom," by S. King Clover. Followed by discussion.

2:30 p.m.—Paper from F. C. Fischer.

We will discuss ways and means of enlarging the membership of the Association, and of making the meetings more educational, enthusiastic and entertaining.

The Washington Honey-Producers will hold their annual election of officers and other business necessary to be transacted on the 10th, following the bee-keepers' convention, at 9 a.m., in the Court House, by order of the President and Secretary.

J, B. RAMAGE, *Sec.*

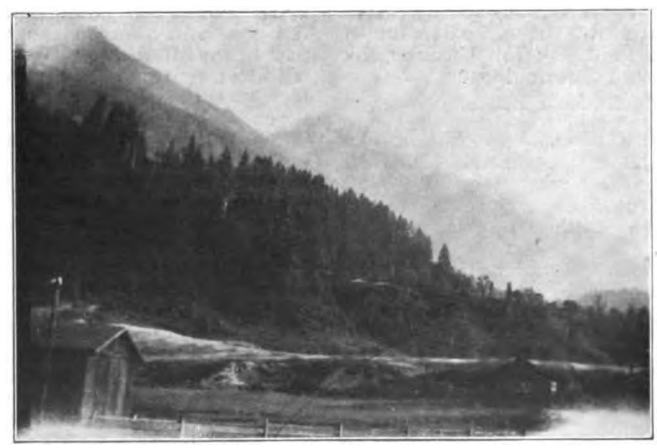
August Number Attracts Attention.—The New Zealand Farmer, a large monthly of 160 pages, published at Auckland, N. Z., reproduces in its November edition a *facsimile* of the C. C. Miller method of queen-rearing, taken from the cover of our August number, with a short description of this method. Dr. Miller is appreciated abroad as well as at home.

Death of Paul Mickwitz.—We are exceedingly sorry to be informed of the sudden death of Mr. Paul Mickwitz, of Helsingfors, Finland, who formerly spent two years in the United States to practice bee-culture with leading apiarists. Mr. Mickwitz, who was with us for three months, was a young man of great ability. His earnestness and intense desire to foster progressive bee-culture in Finland induced him to import Carniolan bees there. His trip of the past summer was mentioned in our columns, page 341, and the present number contains three small snapshots sent to us by him. He had promised us an account of his trip. Our hearty sympathy goes to his family.

THE LATE PAUL MICKWITZ.

The Texas Fairs.—The State Fair of Texas, held annually at Dallas, and the Texas Cotton Palace of Waco have been very liberal in the encouragement given the bee-keeping industry. The making of premium lists has been referred to the Texas Bee-Keepers' Association, and superintendents and judges chosen by the latter body have been recognized by the Fair Associations.

The exhibits have been truly representative of the bee-keeping industry of Texas. This year's exhibit was the best that has been held. Mr. T. P. Robinson, of Bartlett, president of the Texas association, is Superintendent of the Bee and Honey Exhibit at the State Fair, and Mr. W. H. Laws, of Beeville,



THE JULIAN ALPS—CARNIOLA.

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holds a like position at the Cotton Palace.

Mr. Wilmon Newell, State Entomologist, kindly loaned a most instructive exhibit and display, with mounted specimens, of the work and habits of the wax-moth.

All grades of Texas honey were shown most attractively, and every operation of modern bee-keeping was constantly being explained to the visiting crowds. This educational work was carried on without intermission by a committee of bee-keepers who gladly gave their time and paid their own expenses during the entire fair.

The spirit shown by these men and their painstaking work in explaining the simplicities of bee-keeping to interested farmers cannot but give Texas bee-keeping a great and immediate impetus.

An octegenarian retired bee-keeper, Major W. P. Hough, of Floresville, added a touch of real art to the exhibit by displaying some wonderful creations in beeswax. Major Hough owned the first factory for the manufacture of bee-hives in Texas, and is well known to the fraternity of 30 years ago. His advancing years have made necessary a cessation of active work. He still loves bees, and insists that the true medium of art is beeswax.

He had on exhibition two large models of the Alamo, one showing the fall and massacre in 1836, and the other as it appears today. These were in bas-relief on a background of wax. Wax of different colors was used for trees and figures in a manner surprising to one who had never seen the decorative possibilities of pure beeswax.

Another of Major Hough's creations was a curio hive made entirely of beeswax with glass paneled sides in the shape of the bust of a prominent Texas bee-keeper, and containing a full colony of bees.

Mr. L. W. Avant, of Atascosa, exhibited at the Cotton Palace a section of comb in which the cells were made of paper which had been filled and capped by the bees. This was wonderful to visiting bee-keepers, as showing what bees can be forced to do by intelligent management.

A large exhibit of bee-keeper's supplies was displayed by the Southwestern Bee Company of San Antonio. This enterprising firm has been awarded diplomas by the Texas Fairs for four successive years, and by its efforts has done much to make these annual exhibitions a success.

These expositions are doing great good for the development of Texas bee-keeping, aud just now are of great value because work on a new appropriation at the next session of the Legislature is the "order of business," and anything that will place the industry prominently before the people will be of assistance.

Bur and Brace Combs.—Referring to Mr. Scholl's article in this number on brace-combs, we agree with him that they are mainly due to a crowded condition. Narrow top and bottom bars encourage the bees to build them because they can more easily join one story with the next. The bees evidently aim to make continuous combs from bottom to top of the hive. The more different stories we have, the more brace-combs will be built, other conditions being equal. The more stories we have, the more combs we will have to scrape in the spring.

BRUSHIING BEES INTO SHIPPING-CASES.—P. MICKWITZ—(See opposite page.)

Ohio State Meeting.—The following is the program of the Ohio State Bee-Keepers' Association, which will be held Jan. 14 and 15, 1913, at Townsend Hall, Ohio State University, Columbus, Ohio:

PROGRAM.

TUESDAY 2:00 P.M.

President's Address.
Discussion.
Report of Secretary.
Report of Treasurer.
Result of Apiary Inspection in Hamilton County—Fred W. Muth.
With the Apiary Exhibit at County Fairs—Glenwood Board.

TUESDAY, 7:30 P.M.

Apiculture at the University—Prof. J. S. Hine, Ohio State University.
Address—Organization—E. B. Tyrrell, Secretary National Bee-Keepers' Association.
Address—C. P. Dadant, Editor American Bee Journal.
Live Bee Demonstration—E. R. Root, Editor Gleanings in Bee Culture.

WEDNESDAY, 9:30 A.M.

Florida Bee-Keeping—J. B. Marchant.
Queen-Rearing—J. C. Mosgrove.
My Experience with European Foul Brood—B. J. Holden.
Ohio Apiculture—Impressions of a Farmers' Institute Lecturer—Prof. W. A. Matheny, Ohio University.

WEDNESDAY, 1:00 P.M.

A Woman's Way with Bees—Mrs. Jessie Goodrich.
Wax Rendering—H. H. Root.
Production of Comb Honey—A. A. Doeges.
Production of Extracted Honey—H. C. Quirin.

Eastern Illinois Meeting.—The Eastern Illinois Bee-Keepers' convention will be held in St. Anne, Ill., Feb. 4 and 5, 1913, including evening session on the 4th. Those who have promised, and others that we expect are C. P. Dadant, I. E. Pyles, A. L. Kildow, Frank Shupe, Walter Sorensen, H. Roorda, N. A. Timmons, J. Roberts and others. We want to make this meeting as important as the State convention, and want our picture "took" for the bee journals. Come and be one of us, and bring your questions. We expect good speeches, but the question-box will prevail.

H. S. DUBY, *Sec. pro tem.*
G. T. WILLIS, *Pres.*

Apiary Inspectors.—A meeting was called for Tuesday evening, Dec. 31, at the Normal School Building of Cleveland, Ohio, for the purpose of forming a permanent organization of Apiary Inspectors of the United States and Canada. A change is contemplated in the constitution of the Association of Economic Entomologists for the affiliation of Apiary Inspectors, if the latter desire it.

We will keep our readers informed of such action as may be taken.

Apiculture at the Oregon College.—A two-weeks' short course in apiculture will be given during January at the Oregon Agricultural College by Mr. H. F. Wilson, Assistant Professor of Entomology.

The course will comprise the following subjects:

Location and Care of the Apiary, The Bee-family and their Development, The Productive Glands of the Honey-Bee, Hives and Implements, Manipula-

SHIPPING-CASES THE DAY BEFORE STARTING—P. MICKWITZ—(See opposite page.

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tion and Management, Feeders and Feeding, Swarms and Swarming. Queens and Queen Introduction, Transferring of Bees, Bee-Diseases.

On Jan. 29 the members of the Oregon branch of the National Association will hold their semi-annual meeting at Corvallis, and on the same date the students will give a demonstration, illustrating the correct and incorrect methods of handling bees. For further information address,

H. F. WILSON.

Agricultural College, Corvallis, Oreg.

Indiana Meeting.—The meeting of the Indiana branch of the National Association will be held in Indianapolis, Ind., in the Palm Room of the Claypool Hotel Jan. 24, 1913. The foul brood conditions, and what has been accomplished, and will be accomplished, will be discussed by C. H. Baldwin, State Entomologist.

Other speakers and their subjects will be:

Outlook for Indiana Honey and Developing Home Resources—D. W. Erbaugh, Ernest Root.

Marketing Indiana Honey—John C. Bull, Geo. W. Williams.

Co-operation and Organization—E. B. Tyrrell.

We have invited Dr. Phillips, Geo. Demuth, and C. P. Dadant, and fully expect some of them to attend. We are expecting a live meeting, and are making a special effort to develop more fully Indiana's honey resources. Indiana buys carloads of honey from the West every year, much of which is inferior to the home product. When we can have the honey for gathering it, and a market at our doors, there is no use importing any honey at all. Let's get together and furnish it all ourselves.

GEO. W. WILLIAMS. *Sec.*

MASON J. NIBLACK, *Pres.*

National Bee-Keepers' Convention.—Following is the program of the National Bee-Keepers' Association to be held at Cincinnati, Ohio, Feb. 12 and 13:

At 10 a.m. Feb. 12, the meeting will be called to order, and the proper committees appointed, including the committee on credentials. Meeting will then adjourn to enable the delegates to file their credentials with this committee.

At 1 p.m. the meeting will again be called to order, when the regular business will be taken up by the delegates. This meeting will be open to all members, but the voting can only be done by the regularly elected delegates.

At 7 p.m. the meeting will be called for a general program, in which all visitors will take part.

At 8 a.m., Feb. 13, the delegates will again take up the business matters, and should they be able to conclude their business before noon, the balance of the time will be taken up with a general program.

At 1 p.m. there will begin another general meeting of all present.

Headquarters have been arranged for us by the Cincinnati Chamber of Commerce, and a list of hotels and their rates will be given in full in the February bee journals.

E. B. TYRRELL, *Sec.*

BEE-KEEPING FOR WOMEN

Conducted by MISS EMMA M. WILSON, Marengo, Ill.

Queen-Cells in Sections

In scraping sections two sections were found with a queen-cell down in one corner, the cell showing that a queen had hatched. No other brood had been present. Unfortunately this is nothing so very unusual. Some years, more than two queen-cells have been found in sections, and the question is raised whether these were supersedure-cells or swarming-cells, with the uncomfortable feeling that they may have been the latter, and that a swarm may have taken its departure without being noticed. When queen-cells are found in sections it is quite likely that other brood will be present, and if the section is not entirely filled with foundation that brood is almost certain to be drone-brood.

Of course, the use of excluders would entirely prevent the queen from going up to lay in the sections, yet we do not consider it advisable to use excluders, for the trouble we have with brood or queen-cells in sections is less than would be the trouble of excluders. But if we should use small starters in sections, or anything less than sections filled with foundation, we would no doubt be obliged to use excluders. When any one complains that he has trouble with brood in sections, it is a pretty safe guess that his sections are not filled with foundation. And there are plenty of other reasons for full foundation in sections.

Another Cooling Cup

When the next warm weather comes try making a combination of fruit juice and ginger ale if you wish a delectable, refreshing beverage.

Use these proportions: Four oranges, three lemons (rind and juice), one tablespoonful of extracted honey, ½ teaspoonful of pulverized cinnamon, ½ grated nutmeg, 24 cloves, a pinch of ground allspice, a cupful of flaked pineapple, 2 cupfuls of iced water and a pint and a half of ginger ale.

Stick the cloves into the oranges through the outer skin and leave for 2 hours in a cold place. Rub the yellow zest of the lemon into lump sugar, using one lump for each lemon. Put the sugar into a glass jar, strain in the lemon juice, then add the cinnamon, nutmeg, allspice, honey and pineapple. Cover and put in the ice-box until ready to serve.

Then turn it into a cold bowl, add the strained juice from the clove-stuck oranges, the 2 cupfuls of iced water and the ginger ale. Serve, while it effervesces, in small punch cups. Sip a mouthful at a time, or straws may be used. A cupful of grape juice may be incorporated with good results.—*Chicago Record-Herald.*

Report and Questions from Washington

On two occasions during the past summer I had two large swarms settle on the same branch close together. They were quite low, and I placed two hives on a table close under, the entrance of a hive coming in contact with each swarm. The bees at once began to go in, and in less than one-half hour they left one hive and clustered around the other. I placed the empty hive above, and they went in and remained.

1. I did not put on a super, and have been wondering how I will handle them in the spring. I am planning to divide, and if I do, where shall I look for the queen?

2. Providing there is brood in both hives, can I make two colonies by removing the upper body?

3. A number of people keep bees here, and the place is too crowded. I have 27 colonies, and think I can do better with one-half of them, or less. As I cannot sell the bees to any one outside of the neighborhood—which would be the same as keeping them—I have decided to kill part of them, those that gave no surplus. If I can keep the old comb that has pollen in it where it will not mold or candy, would it do to feed the bees in the spring?

4. When would be the best time to do so?

5. Would heating the comb injure the honey for feeding?

6. Is pollen and bee-bread the same?

7. Is there any way to separate honey from bee-bread so it will be fit for table use? I have melted the comb in the oven and drained off the honey, and while it *looks* clear and nice, I imagine it does not taste good.

A great many bee-keepers ask me questions about bees, and when I tell them what a fine thing the Bee Journal is to keep one posted, they say they do not have time to read, or make some other foolish excuse for not taking a paper; even saying it is not worth while. Yet they are willing to learn from others. Some folks are odd; don't you think so?

MRS. GERTRUDE L. GOODWIN.

Roy, Wash.

It is no uncommon thing for a large swarm to cluster on two separate branches close together, having the appearance of two separate swarms, when in reality there is but one.

It looks as if that were the case with your swarm, as all the bees preferred the one hive, the one with their queen probably. Still it may be that you

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A MICHIGAN GIRL IN CUBA.

know that they were two separate swarms—bees often do freakish things. In that case, one of the queens would be killed as soon as they united.

1. If there is brood in both stories, she may be in either story. If in only one story she will be with the brood.

2. Yes, but one part will be queenless. By looking for eggs after three or four days you can tell which is the queenless one (there will be no eggs in that one), then a queen may be given, or, if you prefer, you may let them rear one for themselves. Instead of killing part of your colonies better unite.

3. Yes, even if it is somewhat candied.

4. Any time after bees are flying freely in the spring.

5. No, unless the honey is burned in heating, then it would be unwholesome for winter stores.

6. Yes, pollen is gathered from the flowers, and after stored in the hives it is called either pollen or bee-bread.

7. When honey mixed with bee-bread is heated the flavor of the honey is likely to be affected—the greater the heat the more the honey will be affected.

The best way is to extract the honey. If this is not possible, the combs may be broken up and the honey strained out through cheese-cloth.

Yes, it takes all sorts of folks to make a world, and some are surely odd.

Queen-Rearing in Cuba

Although rather disappointed in the two pictures enclosed, I am sending them on account of the luck I had with the batch of queen-cells shown therein. The picture is taken in an orange grove, where I have my queen-rearing outfit. At 10 o'clock a.m. I removed the brood-chamber of a strong colony to a new location, leaving the honey super on the old stand, from which one frame was removed, and the frame inserted as shown in the photograph, with 28 empty cells made of pure wax, by dipping a rounded stick in it while melted, and repeating this dipping and cooling until you get just what is wanted.

In the evening these cells were grafted without royal jelly, and for the first and only time, with me, the entire 28 were accepted and sealed. The morning that the last one was capped over, a visitor happening along wished to see the cells, and the first thing I saw, on removing the frame, was a queen dodging around among the cells, and one cell torn open. I thought I recognized the queen as coming from another hive, and sure enough it was the same lady. She was a young queen, and had been laying nicely for about a week, and had plenty of honey in her home, so why she should leave it I do not know. She was captured and dropped into a queenless colony, was accepted, and is still there doing good work.

The frame was then photographed as shown, and afterward the one cell re-grafted and accepted. Taking the finding of the queen just when I did, together with the number of ripe cells I got from this batch, I think the whole operation is my luckiest. In trying to have the queen, mother of the larvæ in the cells, shown in the photograph, most of the bees were driven from the frame the lady is holding, and even then it is impossible to pick her, without knowing just where she is. The lady is a Michigan girl, and it was her first association with bees — some nerve, hey!

D. W. MILLAR.

Yes, the lady surely does show nerve to sit quietly without sign of veil or gloves while her picture is being taken. Is it not possible that this is at least partly owing to her confidence in the man who stands close by?

Even though the scene be laid in far away Cuba, a home touch is given to it by that copy of the American Bee Journal on her lap.

FAR WESTERN BEE-KEEPING

Conducted by WESLEY FOSTER, Boulder, Colo.

Spraying and Bees

The bee-keeping industry has been seriously injured in nearly all the commercial fruit districts of Colorado the past season. In the Canon City district the loss was the greatest on account of the fruit men spraying during full bloom for the leaf roller. Somewhere from 600 to a 1000 colonies and their increase were destroyed, as well as the honey crop.

The effect on the bee-industry will be to drive the bee-keepers out to the alfalfa districts. The losses from spraying were so general this year in all the fruit sections of Colorado that bee-keeping was a loss to those engaged in it.

It is possible to move the bees three or four miles away from the orchards during bloom and bring them back for alfalfa bloom, if alfalfa is not grown for a cover crop in the orchards, in which case the later sprays will poison the bloom beneath the trees. This can be remedied by cutting the alfalfa or clover before blooming. It is practically impossible to get all to do this, however, and I have recommended for all bee-keepers to leave the fruit districts.

The effect on the fruit crop will be revealed later. It is probably true that other insects do some of the cross fertilizing, but where thousands of acres of orchards are grown, the bees are most necessary. It is my opinion that fruit-men and bee-men will have to get together, and I hope they will soon.

The bee-men secured a law several years ago forbidding the spraying of fruit trees while in bloom with any substance injurious to bees, but the fruit-men seem to resent this, and the clause in the law was changed so the bee-men have no protection except to move out of flight range of the orchards.

Spraying fruit during full bloom is

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the most destructive to bees; colonies being wiped out in a very few days. The spray falling on blooming clover seems to act more slowly, some colonies not dying until early fall.

Surplus Combs of Pollen

The average bee-keeper will put away a generous number of well-filled combs of honey for supplying colonies that may become short of stores during the spring months. But does the average bee-keeper realize that pollen is as necessary (if not more so in certain localities) as honey? And why do not bee-keepers store surplus combs filled with pollen? Partly because they do not understand the conditions which cause the bees to fill their combs with pollen.

At the present time I can think of but two distinct conditions under which the bees store combs of pollen. A large colony rendered queenless will do it for lack of brood to use it.

Did you ever notice that a colony operated for extracted honey, with more chambers added above than the bees can fill, will store great quantities of pollen in the lower hive? What we need in this year of 1913, is more thorough experimental work along this line. The bee-keeper who derives his livelihood from the honey sold cannot do experimental work as satisfactorily as specially trained men. We must get the spirit of progress, so evident among farming operations, injected into the ranks of the bee-keeping fraternity.

Disinfectant for Foul Brood—Inspection

As the laws relative to inspection of bees, etc., say that the inspector or party handling diseased material must disinfect clothing, tools, etc., what do you use? What is the method of using?

What is your method of treating foul brood?

What time of year is best for first inspection, second inspection, and is a third one necessary in one season? T. D. SAFFEL.

Farmington, New Mexico.

A weak solution of carbolic acid has been used by many inspectors as a disinfectant. Its efficiency lies only in the washing away of any honey that may adhere to the hands, clothing, or hive tools. The odor of carbolic acid is disagreeable to bees and to people alike, and that might keep the bees from working on hive tools, etc., that have been washed in this solution. The best disinfectant is plenty of soap and water for the hands and hive tools, not forgetting to see that no spots of honey on the clothing are missed by the soap and water.

My treatment of foul brood is governed by conditions. I have used the single shake upon starters, and the double shake upon drawn comb with success. I have not practiced saving the brood as much as some do, because of the danger of starting robbing. The average small bee-keeper cannot be trusted with the brood-saving process at all. And many of the so-called practical bee-men spread foul brood among their own and their neighbors' bees by the same process.

Most colonies that were ordered to be treated this past season have been either shaken once or twice, the old combs burned, and the hives burned out with coal oil.

The first inspection can best be done in April or May. This depends largely upon local conditions and season. There should be considerable brood in the hive, say five or six combs, so that if the disease is present it will have shown up. After ten days to two weeks a second inspection should be made to see if directions for treatment have been carried out. A third inspection may be needed late in the summer in a few cases, if there is a large percentage of diseased colonies in the locality. This will depend greatly upon local conditions.

You, as an inspector, will find that the spread of the disease can be largely prevented by visiting the apiaries in the fall, winter, and spring for a superficial inspection to determine whether colonies weak or dead from the disease are exposed to robbers. The combs need not be lifted or the clusters of bees disturbed, but much good may be done by caring for the disease at this critical time, and before robbing occurs.

The Apiary, Par-Excellence

The writer has visited a thousand apiaries, and four come to his mind as being worthy of admittance to the model class. Without hesitation or mental reservation, I will say that the "Apiary Babberger" is the prize taker of the four in the model class.

Mr. Wm. Babberger, the creator of this little *honey garden*, is a German artist-photographer. He has the artistic temperament to the extent that he is uncompromising in his denunciation of low bee-culture ideals. He would say, as did Whistler, when a pot-boile artist excused his cheap work by com plaining, "Well, a man must live.' Whistler replied, "Not necessarily."

Mr. Babberger would say, "If you cannot feed the artistic side of your nature as well as your body by bee-culture, better quit the bees." Pleasure must flow from all he does, or he will not do it long. Old world folks live a richer, fuller life than do we hurried, practical Americans.

If you could have taken supper with Mr. and Mrs. Babberger and "bubschen," as it was my pleasure not long ago, you would have realized as I did the beauty of just common things. The delight in plants, and shrubs, and flowers is one of Mr. Babberger's characteristics. It is a little Dutch garden that encloses his honey garden, and is all that one could wish along this line.

From 25 to 45 colonies make up the apiary. One season he harvested 2300 4x5 sections from 25 colonies. Glass panes are used for inner covers, and Mr. Babberger likes them very much. He says very few are broken, and they require cleaning but once in two years.

A goodly number of Canon City residents have become interested in bees through admiring this little garden of delight. All indoor workers can imagine the pleasure Mr. Babberger takes in this opportunity for outdoor exercise among his bees and in his garden.

When Dr. Phillips was in Canon City about a year ago, the Fremont county bee-men met him in Mr. Babberger's studio. Mr. Babberger had a pile of his honey in the center of the studio, and any one could see that he took as much pride in the excellency of his honey as in the artistry of his photographs.

SOUTHERN BEEDOM

Conducted by LOUIS H. SCHOLL, New Braunfels, Tex.

Bur and Brace Combs

There is a diversity of opinion regarding bur combs, some bee-keepers claiming that they are of considerable value in causing the bees to enter the supers more readily. It is also argued that they are valuable as ladders for the bees while storing in the surplus boxes above the brood-chamber.

On the other hand, they are "a nuisance" in the minds of probably the majority of progressive bee-keepers. When frames are handled a great deal, these brace-combs not only hold them together and make them difficult to handle, but result in smashing many a valuable bee. On this account alone bur or brace combs should not be tolerated. Another objection is that they help to cut off the communication from one story of the hive to another, materially interfering with the storage of honey in the supers, and crowding the brood-nest with honey at the expense of the supers above. This is a serious question since it not only concerns the loss of surplus in the supers, but also that loss due to the weak condition of the colonies as a consequence of the queen being crowded out of egg-laying room. This is of the utmost importance where late flows may be obtained, or with colonies going into winter quarters under these conditions. Such colonies, although they have packed their brood-nest full of honey, are weak in bees, as a rule, and these bees are old ones.

This is contrary to our idea of the conditions necessary for wintering safely, and especially for building them up promptly for early honey-flows. To obtain the best results in this direction there are none better than colonies that have been able to rear a large quantity of healthy brood late in the fall. This insures a lot of young bees that will live well into the following season, when, really, bee-life is the most valuable. Each bee in early spring is worth several later on, as they are most needed in early brood-

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rearing and the building up of colonies.

The following letter is in line for just such information:

"*Dear Sir:*—Please let me know through either of the three bee journals of the United States, what success you have had with your *Scholl shallow extracting* and *brood frames* as regards *bur* and *brace combs.* Are you troubled any with these, especially with your frames with top-bars, ¾-inch wide and ½-inch thick? How do you overcome this difficulty? Please give us an article on bur and brace combs in *divisible brood-chamber hives;* also in *deep hives,* as this is a great trouble where one has to *change frames* from one hive to another. Do you think a thick top-bar, ¾ or ⅞ inch, will overcome this trouble? Do you find these bur and brace combs in frames only ¼ or ⅜ inch thick by ¾ or ⅞ inch wide?

"I wish you would have all your divisible brood-chamber articles in pamphlet form like Doolittle's book, 'A Year's Work in an Out-Apiary.'"

WM. P. FRITZ.

Canastota, N. Y., Nov. 25.

What is the cause of bur combs? A crowded condition of the hive, or, in other words, a lack of room. However, they are also constructed during the time of scant nectar supply, when the flow is not sufficient for good super work. Another cause may be improper spacing of the frames, either too wide or too close spaces, which the bees fill up with combs. My experience has taught me that the most accurately-made hives give the best satisfaction in the matter of bur combs and ease of handling.

Remembering, as a first precaution, that a crowded condition results in the most bur combs, we must try to prevent such a condition. By paying close attention to the colonies, providing the necessary amount of room, and keeping the bees busy and contented, the trouble may be obviated to a great extent.

Another thing that should receive more attention is proper "spring cleaning" of the hives. At this time the frames should be scraped clean of the small bur and brace combs that may have been started. This provides nice, clean frames for each manipulation throughout the busy season, and prevents the bees adding to and enlarging those that had already been begun. With a properly constructed hive-scraping tool this work is not difficult, when it is done before the colonies have become populous in the very early spring. At this time, too, the combs are light in honey, and brittle. They are sticky, and harder to clean off later.

We have not had any trouble with the ½-inch thick by ⅜-inch wide top-bars of our shallow frames, with the proper manipulations of the colonies as suggested. Far more trouble have we had with the thinner, flat, wide, top-bar shallow frames. The most trouble is given by the old style all-wood frames with very thin ¼-inch thick and ¾-inch wide top-bars. Thick top-bars ¾-inch thick and 1⅛ inches wide are to be recommended for deep frames, but these are too thick and heavy, as well as too expensive for shallow frames. The ½-inch thick top-bar, ⅞-inch wide Hoffman self-spacing frame, otherwise known as the Scholl shallow frame, has given us the best all-around satisfaction.

We believe most emphatically in providing as much free communication between the various stories of the hive as can probably be obtained by cutting down the width of the top-bars, but being careful not to go to the other extreme of getting them too narrow or too thin. This ensures better super work, and a consequent larger yield of surplus honey.

Having been asked by dozens of bee-keeping friends for information, in pamphlet form or in book form, on the subject of divisible brood-chamber hives, I have already made the beginning of such a work, which will come out some time this year.

"Buying Cheap Goods to Save Money is Like Stopping the Clock to Save Time"
It Pays to Buy LEWIS BEEWARE—Always the Same—Always Standard
Send for Annual Catalog which will tell you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.

BEE-KEEPING IN DIXIE

Conducted by J. J. WILDER, Cordele, Ga.

Danger from Bees

This is the best time of the season to move bees from one location to another. Bees, if not properly packed and handled, are very dangerous, yet some people are very careless with them, or around them, and each season has its victims from the stings of bees.

A beggar went to the back-door of one of our Dixie bee-keepers the past season and asked for a lunch. While it was prepared he removed the cover of a near-by hive of bees and was stung to death before he could get away. D. B. Badgeley, a wealthy farmer near Parkersburg, W. Va., was stung to death by a swarm of bees last June.

Mrs. R. W. Herlong, of Fort White, Fla., had a mare and colt stung to death the past season, and several members of the family barely escaped death at the same time. The colt and mare were grazing in the apiary, and in some way upset a colony. The bees attacked them, and in their effort to escape they upset 5 more colonies. Not only were the horses stung to death, but the furious bees took possession of the entire town until night. It was stated the next morning that there were a half bushel of dead bees on the ground around the animals.

One man who had to take refuge between the corn and fodder in a crib near by, said that he could hear the rats running through the corn below him squealing from the effects of stings.

That tragedy will never be forgotten by the people of the town. If bees cannot be securely prepared for moving by some one who has had experience, they should by all means be moved at night. I have had much experience moving bees, and on several occasions, in spite of my care, I have had narrow escapes from accidents.

Timely Suggestions

The bees have now begun their winter sleep, and seemingly their quarters are as destitute of living objects as cemeteries. It makes me lonesome to visit their quarters, where only a few weeks ago there was so much activity. But only a few weeks more and we will witness the same.

While we rest as they do, we should formulate plans, get familiar with other bee-keepers' methods, make large deposits in our bank of bee-keeping knowledge, so that during the busy season next year we may draw heavily from it. Do all the necessary moving of bees, and the establishing of outer apiaries, building of honey-houses, work-shops, etc. Then, too, make a list of the bee-supplies needed for next season, and get them in readiness. It will lighten the rush which is sure to come later.

Happy New Year

As it is customary to offer New Year's greetings, I now fall in line and wish a happy and prosperous New Year to every bee-keeper in Dixie, as well as to our other readers. If I could say the word or do the thing that would cause the mantle of prosperity to fall on every one, I would do it, but it is beyond my grasp, dear reader. However, it is within your reach, and it is just whether you will try or not. The old adage is true, "Where there is a will there is a way." We need men in our business who have a fixed will to do things and succeed.

Back to Florida

It is now the first of December, and I am getting ready to go to Brodentown, Fla., for the winter, where I hope to catch up with my hunting and fishing, so that when I return next spring I will be ready for the busy season. This season has been my busiest one, and I have had no vacation. I am not mentally nor physically broken down,

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but I stand in need of rest, and I look forward to a change with happy anticipation. I don't expect to be idle during my stay in Florida, for I will have lots of writing to do aside from my correspondence, as I expect to write on extensive bee-culture, and cover a broader field than any writer has ever before covered.

I have operated a large number of apiaries for years, and during the past season I ran the number up to 40, consisting of over 2000 colonies. The future seems much brighter to me than the past, and I am looking forward to where my apiaries may number nearly 100. I expect to write solely from the standpoint of extensiveness.

Chunk Honey—8 or 10 Frame Hives

"MR. WILDER:—I think I would like to produce chunk honey, for it appeals to me as being the cheapest way to produce comb honey. What size of hives do you use? I am thinking of changing from the 8 to the 10 frame hive. Do you think this would be advisable?" J. WADE DICKSON.
Westminister, S. C.

There is nothing like trying a thing out and settling it for yourself. If you run a part of your bees for chunk honey and a part for comb honey in sections, you could not go very far wrong. But I believe that where these two methods of producing honey are tested side by side, the former will win; especially is this true where a bee-keeper produces honey mostly for his own use and the near-by market, because he can leave it on the hives and remove it as he sells it. Then, too, it is not so troublesome to produce, and more of it can be produced by the same number of colonies.

But if comb honey is produced for a distant market, section comb honey would be the best. Comb honey in 1-pound sections is known on all the markets. It will not granulate so soon as chunk honey. In fact, it does not granulate at all on our southern market, and this is a very strong point in its favor.

Almost all of the honey produced in the South granulates too early, or before it can be consumed, and usually a lot of it is left over at the end of the season. This, of course, is detrimental to its sale.

Now about the 8 or 10 frame hives. I use the 8-frame hives, because a single story furnishes sufficient brood-nest for the bees in many of my apiaries, where brood-rearing is never at a very great pitch, owing to certain conditions which always prevail. The 8-frame single-story hive with a shallow extracting super makes a more ideal brood-nest, and one that can be examined better and quicker. Even if the 10-frame hive gave a better brood-nest, I could not get the first frame out or the last one in as quickly. The hive is just too small for so many frames, and this reason alone would prohibit my adopting it. No doubt in some locations, especially where the main honey-flow is short and heavy, and by the methods of some bee-keepers, the 10-frame hive is the best, but I doubt if it would be advisable to change from one size of hive to another, and in many cases it would be too much of a "mix up" to adopt both.

[Friend Wilder's statement that the 10-frame hive is "just too small for so many frames," and that he cannot "get the first frame out or the last one in as quickly" with the 10-frame hive as with the 8-frame does not appeal to us. Properly made hives should have the same space, *per frame*, whether they are 12-frame hives or 6-frame. His lightning methods of handling bees, and his bee-keeping by proxy may make the 8-frame hive more desirable to him However, we would like to hear from him whether he does not have more swarms and smaller ones from the 8-frame than from the 10-frame. We have always considered the 10-frame hive as scanty enough, and our experience is that a colony in a 10-frame hive will fill its wide super as quickly as the 8-frame super will be filled by the colony in a smaller hive.—EDITOR.]

MR. WILDER AMONGST THE ORANGES.

CANADIAN BEEDOM~

Conducted by J. L. BYER, Mt. Joy, Ontario.

Alfred Pike's Record Crop

"What is believed to be a record yield in alsike clover in York county, and probably in the Province of Ontario, has been grown and harvested on the farm of Alfred Pike, of Box Grove, in Markham township: From 7½ acres of land, Mr. Pike has thrashed 66½ bushels of uncleaned clover seed. This was sold to a city firm at $11 a bushel, or $731 for the whole lot, or nearly $100 an acre. The average price of farm land in Markham township does not reach that amount, and the one crop would pay for the land and leave a small margin over. Mr. Pike is a successful farmer, but the yield and the prices quoted will probably stand as a record for some time."

The gentleman referred to in this clipping is well known to the writer, and the facts given are beyond question. Some few years ago, while we were still on the farm, we thrashed 100 bushels from 10 acres, but the price at that time was about $6.00 per bushel. Yield and price combined, it certainly looks like a record breaker, as it has been a long time since alsike reached $11 a bushel. One of my apiaries was in reach of that field of alsike, and for some reason that yard gave me the highest average of any this season. Alsike certainly pays the farmer as well as the bee-keeper, even if yields and prices are not apt to be on a par with the example under consideration.

Experiences as a Foul Brood Inspector

Mr. J. E. Crane, of Vermont, well known to the fraternity all over the continent, is writing for Gleanings in Bee Culture some experiences encountered while acting as foul brood inspector in his State. Many of his reminiscences are of a humorist nature, and have to do with queer hives, frames and fixtures. The writer of these notes has traveled around on inspection work for four years, and met with many experiences like those that Mr. Crane tells about.

When reading Mr. Crane's last article, one of the *best things* that happened while I was at the work came to

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my mind. A certain section was badly infected with foul brood, nearly every apiary visited being diseased within a radius of seven or eight miles from where we believed it had spread. A bee-keeper of the neighborhood was taking me around. He was a splendid fellow in every respect, much afraid of offending any one, and in great fear of taking me to some place where there might be danger of not being well received. After we had about covered the district, I asked him if he knew of any more bees in the community that might be infected. He replied rather hesitatingly that about five miles away a hotel-keeper lived who had about 40 colonies in box-hives, and that he had threatened what he would do to anybody "that would come around and fool with his bees."

While my friend naturally wished to know if disease was in the apiary, he questioned whether we had better bother with him, as the man had the reputation of being a fighter. To make a long story short, he was afraid that the inspector, being a little fellow, might get hurt. I jokingly told my friend that the dog that barked the loudest was generally the slowest to bite, and assured him that we would go to the place at once. As we drove up to the hotel, about a dozen men were standing around. Before my friend had introduced the proprietor to me, I had picked him out. He was a typical saloon man, very portly, and with a cigar in the corner of his mouth. After my being introduced as "the inspector sent out by the Government to inspect bees," he was cordiality personified in his manner towards me, and I was assured that it gave him the greatest pleasure to have me call, and he would at once show me his apiary. I suspected a joke, as I noticed a rather peculiar smile on his face, when he spoke of his "apiary." He took me behind the hotel. What a sight met my eyes! Forty or more boxes, not *hives*, were standing on scantling, with a few auger holes in the tops of most of them, over the strongest of which were placed a few sections as an invitation to go above and work. I looked at the outfit, and he looked at me, a huge grin covering his face as he remarked, "Now go ahead and inspect the bees, will you?"

About one-third of the colonies had died during the winter, and as this was in May, the moths had not yet destroyed the combs. I asked him what he was going to do with these boxes of combs in which the bees had died. And he said, "Nothing, do as you like with them." The bottom-boards were loose; in fact, the boxes were sitting on old planks, so I at once upturned them and thoroughly examined all of the combs, breaking them out to do so. As dead bees were all through the yard, not one of the hives examined showing a foul brood scale, I did not care to look into the hives that had living bees in them, and told him so. With a still more expansive smile, he told me that he wanted his *bees* examined—the combs of the dead colonies would be melted up anyway, and it was the *bees* he was particular about. Of course, the joke on his part was in the thought that the said bees, located as they were, could not be examined.

I replied that it would give me great pleasure to abide by his wish; in fact, I would be more satisfied myself to examine *every* colony for him. Imagine his surprise when I blew smoke in at the entrance of the first hive in the row, gave the hive a rap or two, and then upturned it. The combs were spread apart, and one with brood was taken out of the center of the brood-nest. The bees were pure blacks, and as all know who have handled them, they will, especially early in the season, stampede when thoroughly frightened. As I wore no veil, and received no stings, I kept turning one hive over after another as if in love with the job, and the look on my hotel friend's face can better be imagined than described. Before I was through, he shouted from the far corner of the yard, "You'll do old man," and there was something said about "come in and have a drink." Neither my friend nor myself accepted the invitation, as both were on the "water wagon."

Coal Cinders

Coal cinders in front of hives (page 361). It is a good idea, and a cheap way of solving a difficulty encountered by any one who has out-yards situated on very rich soil, where the grass grows provokingly fast when the bee-keeper is so rushed with work that he hates to stop and swing the scythe or run the lawn mower. Then, unless the work is done early in the morning, the operator gets a hot reception, for nothing angers bees more than to go among them in the daytime swinging a scythe, and once in a while giving a hive a whack with the end of the same.

In many localities coal cinders can be had in any quantity, and I hope to try this plan myself next season, in at least one yard. I have tried salt, and while it kills the grass, it takes a large quantity to properly fix a large apiary, at some cost, while the coal cinders can be had for nothing.

Pollen and Weight of Hives for Winter

Miss Wilson speaks of combs being filled with pollen, and says that when this is the case hives weighing 50 pounds are none to heavy (page 362). That weight is none too heavy, even if there was no unusual amount of pollen present, but the purpose of this comment is not so much to criticise her estimate as to emphasize the fact that often colonies starve by reason of the owners failing to remember that heavy combs of pollen are not "winter stores." A colony that has all new combs, and consequently little pollen in them, may often weigh much less than another colony with old combs and a great amount of pollen.

The beginner often does not understand this, and when he lifts the hives he may pass the heavy hive and be a a bit doubtful about the lighter, only to find in the spring that his "heavy" colony is either dead or suffering with dysentery, while the "light" colony will be in fine shape and have stores left. Even old timers are sometimes fooled on this question, and in this northern section I doubt if anything causes so much winter losses as allowing colonies to go into winter quarters with heavy combs of pollen in the brood-nest.

The Short Course in Bee-Keeping

The Provincial Short Course in Bee-Keeping, to be held in Guelph at the Ontario Agricultural College on Jan. 7 to 18, 1913, bids fair to out-distance all previous efforts in this direction. In a draft of the program sent me recently, I notice the names of several friends from over the line who are to take part in the lectures and demonstrations. Among them are Tyrrell, House, Clark and others. From Ontario a number of our well-known men are billed also. For the last two days of the gathering enough might be present to have an old-time convention. I think Mr. Pettit has something of that nature in view by the way he has arranged the program. Information can be obtained by writing Mr. Pettit at the Agricultural College, Guelph, Ont.

Feeding Sugar Dry

A controversy is taking place between Editor Root and A. C. Miller as to the qualities of a certain sugar, known variously to the trade as "A," "Coffee A," "Coffee," and "Empire A." Mr. Miller has proven that the bees can use this sugar even when not a bit of water is mixed with it. Can this sugar be obtained in Ontario? While we do not anticipate using much of it, what a boon it would be for early spring if a colony was found short of stores. Place the sugar so the bees could get at it, and the work would be done—no danger of chilling the brood, to say nothing of the danger of feeding liquid food early in the spring, during times of inclement weather. I want to know more about this sugar as soon as possible.

The Weather in Ontario

On Nov. 21, our bees in York county had a good flight, and a little pollen was brought in by some colonies from scattered dandelion that were still in bloom in sheltered locations. Pollen at so late a date is a record for "our locality," and such a condition is not likely to be duplicated for years. Since then the bees have had no flight, but the weather has been milder than usual for this season of the year, until today (Dec. 12) we are having wintery weather, the thermometer getting down near zero. We have had almost no snow in this section, but north and east of us quite a lot of the beautiful has fallen.

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American Bee Journal

MEMBERS IN ATTENDANCE AT T

1. G. W. Fehleisen, 2. B. A. Aldrich, 3. J. S. Myers, 4. A. D. Clancy, 5. J. C. Donahue, 6. M. M. Bruner, 7. B. H. Tripp, 8. G. W. Nance, 9. J. P. Bla 18. W. H. Pearson, 10. J. F. Diemer, 20. Mrs. E. C. Wheeler, 21. Miss Nina Secor, 22. E. E. Townsend, 23. I 29. Frank C. Pellett, 30. J. L. Strong, 31. M. G. Dadant, 32

CONVENTION PROCEEDINGS

Ontario Meeting

BY J. L. BYER.

The Annual Convention of the Ontario Bee-Keepers Association, was held as per schedule, in Toronto, on Nov. 13, 14 and 15. The first session opened with a full house, our efficient President Mr. Denis Nolan, occupying the Chair. Aside from the number of Ontario bee-keepers present, both men and women, the latter more in evidence than usual, we had a splendid representation from "over the line" among whom we will mention the editor of this Journal. Mr. and Mrs. House and another lady, whose name I cannot recall, from Camillus, N. Y., Mr. and Mrs. Clark of Borodino, N. Y., and our old friend who is as much a Canadian as a Yankee, Mr. Hershiser of Buffalo.

The President in his opening address referred to the fact that in many parts of Ontario the crop had not been good during the last season, but to offset this the demand for honey was very keen and prices very good. In a few of the western counties of the Province the crop had been very heavy, and in these favored localities the bee-keeper had reaped a rich harvest. The grant from the Government had been increased, and judging from the attitude of the Department, it looked as if we could get help from there whenever it was needed. This year for the first time, the Association had put up a collective exhibit at the Horticultural Show, which was in progress at the time of the meeting. Owing to the urgent demand for honey, many apiarists had sold all their crop quite early, and as a result it was hard to get as much honey for this exhibit as was desirable; nevertheless, the exhibit was very creditable indeed, as the President declared, this being the first attempt in that line of work.

Only one County had placed an exhibit—namely Middlesex, it being among the fortunate ones in securing a good crop this year. Their exhibit was a credit to the County and to the people who did the work of gathering

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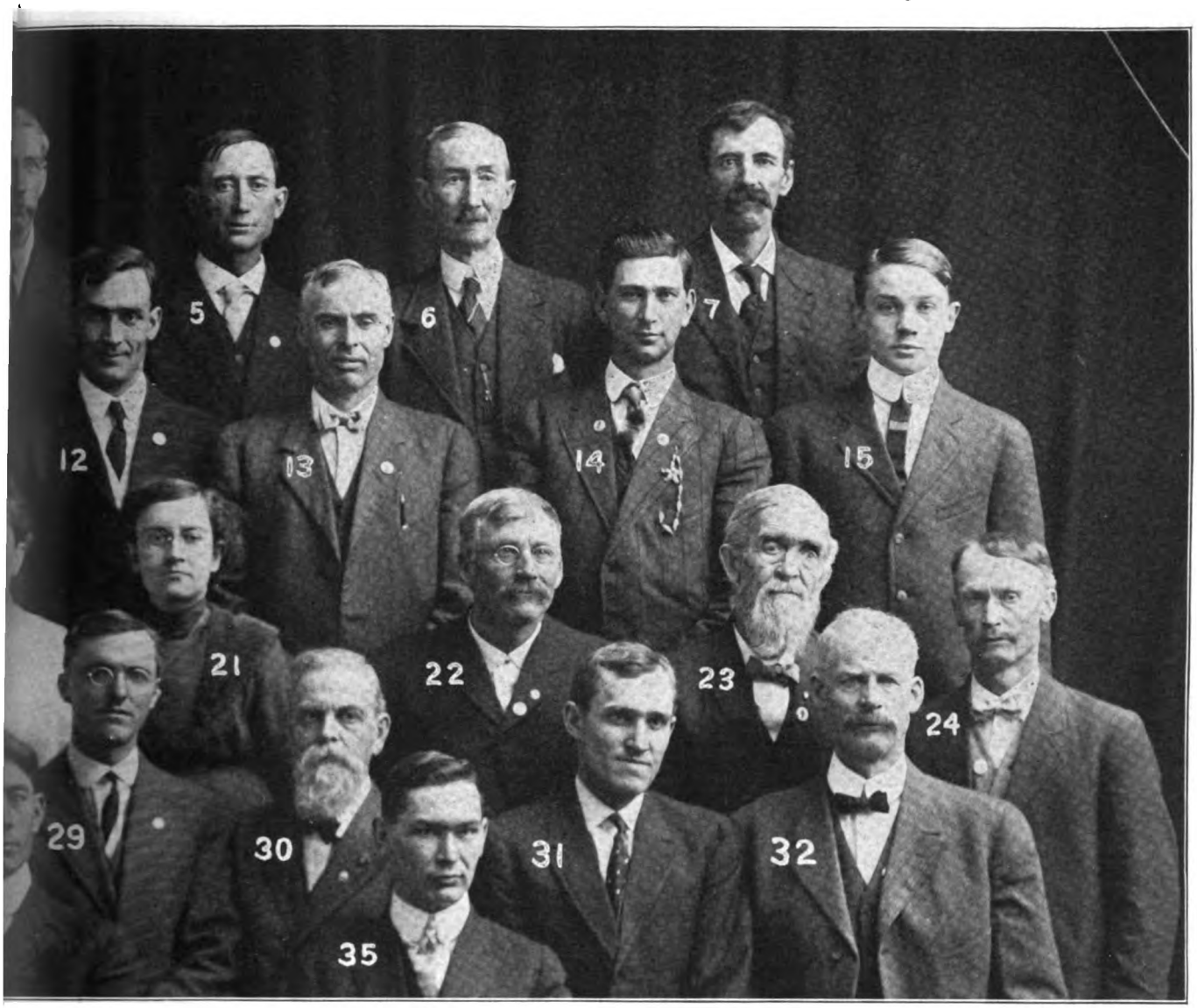

OWA BEE KEEPERS' MEETING.

10. L. M. Carlson, 11. W. S Pangburn, 12. J. W. Stine, 13. J. B. Espy, 14. W. H. Winch, 15. J. H. Schweer, 16. J. C. Stocks, 17. Arthur Wright, Grantham, 24. J. H. Burghduff, 25. A. F. Bonney, 26. E. C. Wheeler, 27. Eugene Secor, 28. S. W. Snyder, 7. Hall, 33. Hamlin B. Miller, 34. ——, 35. F. C. Scranton.

the goods and arranging such a tasty display of the products of the hive. Middlesex County has a splendid record for bee-keeping, and has the men and **women** who know how to take advantage of the opportunities that nature has put in their reach in the way of securing large quantities of as delicious honey as is produced in any country in the world.

Mr. Tyrrell of Detroit, Editor of the Review, was unable to be present to the great regret of all of us, but in his absence he did the next best thing and sent splendid papers bearing on the subjects that had been allotted to him, namely: "Improved methods of selling honey," and "Problems confronting the National."

The paper on selling honey was especially good, and I regret that it is too lengthy to appear in a short synopsis like this article. The qualities of a salesman are not acquired in a day, any more than man can be a good bee-keeper without special preparation. As the paper pointed out, many good bee-keepers are very poor salesmen, and here came a good point in favor of organization for disposing of the bulk of the honey crop. Good salesmen must be neat in appearance, able to talk convincingly and **enthusiastically** about the wares they are representing, but it does not pay to exaggerate or make claims that cannot be substantiated by the goods. As an illustration in the methods of soliciting a sale as compared with an effort rather to discourage than buy, Mr. Tyrrell mentioned how one clerk will say after a purchase has been made:—

"Nothing else that you want?" while another would say "Here is a nice article that you need" or words to that effect. Generally speaking the man who adopts the latter method will be the better salesman.

In his paper on the problems of the National, Mr. Tyrrell gave a thorough history of the Association for a number of years, stating the reasons that led up to the change of constitution as it is at present.

At the close of the discussion the feeling of the meeting seemed to be adverse to the Ontario Association becoming a branch of the National and accordingly no steps were taken to that end. While as a matter of **sentiment** many would like to affiliate with the National, it was felt that as a matter of business there was nothing to be gained by taking the step under discussion. One minor objection raised was that the name, "National" is not appropriate for a society doing business in two countries.

At present everything in the bee-

American Bee Journal

keeping line seems to be booming to such an extent over here that we imagine there are no difficulties to need serious consideration aside from the fight against European Foul Brood and in so far as that work is concerned, we have to depend on our government for financial assistance. The selling of honey and other kindred problems are not problems at all just now, as it is not a question of where we can sell honey, but rather how much we can supply. My own inclinations lead me to desire affiliation with the National, but this is a question of majority rule.

Mr. Morley Pettit, the Provincial Apiarist, gave an address on the Foul Brood Situation in Ontario. Briefly, he said that American Foul Brood is being held in check and in many localities is wiped out altogether. As to European Foul Brood, however, Mr. Pettit frankly gave it as his opinion that it would sweep all over the Province, no matter how much inspection was done. The only remedy known and advised, is that all black colonies be italianized with a good vigorous strain of that race of bees. From what I can learn, good Carniolans are just as good to fight the disease, but owing to their color being somewhat like that of the black bees for beginners at least, it is much safer to italianize. The motto in regard to italianizing is "do it now" for most assuredly black bees go under in a hurry when this scourge strikes them. While there was a lot of discussion on this matter of European Foul Brood, for the first time in my remembrance, "starved brood' was not mentioned. One man who defended black bees last year, and has since gotten European Foul Brood among them said to me, "No one need ever suggest starved brood to me any more as the cause of this curse."

As the greater part of one session was devoted to the matter of running out apiaries with the aid of automobiles, one may be justified in thinking that bee-keeping has reached the most advanced stage of any period on record in Ontario. Mr. H. G. Sibbald, who is one of our most successful men, uses a Ford, five passenger car, and is highly pleased with this innovation. Seven or eight, who were present at the meeting, are also using motors in different types, and all seemed to think they were a paying investment, especially where one does not need to travel much in the winter.

Mr. Enos Farr, of Low Banks, uses a motor truck and carries extractor, engine, etc., from one yard to another. Mr. Chrysler of Chatham, and Mr. Miller of London, also use motor trucks, but they haul all the honey home to be extracted, having a large room at home with full equipment for rapid work. Both use a frame of the Heddon type, and it was pointed out that with loose hanging frames, the combs would get damaged in transit. Personally, while admitting that both friend Miller and Chrysler are making a success with their methods, if this scribbler had to adopt similar plans he would soon go out of business. On the other hand I feel sure that neither of them would consider for a moment the thought of keeping bees as I do so that what is good for one man is useless for another—a fact that would explain many differences of opinion not only in bee-keeping but all other callings as well. No doubt many are in the same position as myself in the possibility of adding an automobile equipment to our plans. I could not afford one if I wanted it **"real bad,"** which is not the case yet, and I am such a "botcher" with machinery that an engine to be satisfactory to me would have to be almost absolutely "fool-proof." Even if I had an auto, I would still be at the expense of a horse, as living in the country, we would need means of traveling in the winter months. Then during the past wet fall, at the time our feeding was done, some of the roads were so bad that an auto would not have served when it "ought to," and the horse would have had to be in service again. When I can afford an auto as a luxury, likely one will be bought—**that time** is a matter of conjecture, but as I consider the matter from a purely financial standpoint, old Dobbin will have to do our traveling for a few **years yet.**

J. E. Dunn gave an instructive talk on preparing bees for winter, and Mr. Harkness spoke from the standpoint of winter and spring management. One thing in which Mr. Harkness' method is out of the ordinary, and as a result created some discussion, is that he winters in the cellar, and before putting the bees inside, the regular cover is removed and a rim about two inches or more deep is set on the hive. Inside of this rim a sealed comb of honey is laid flat, and over all a few thicknesses of burlap. While he meets with good success by this plan yet to my mind he must have a perfect cellar, as in a cellar too cold there would be too much exposure of the bees prepared in that manner, when the bottom boards are also removed. The plan did not meet with much approval. The preparing of a large number of colonies in that way would mean a lot of "fussing." I would prefer having that extra amount of honey in the brood nest instead of on top of the frames. In connection with Mr. Harkness' address the usual discussion as to ventilation of bee cellars came up again, with the result, as viewed from an impartial standpoint, that fresh air, and lots of it, got the best of the bargain.

The Hon. James Duff, Minister of Agriculture for Ontario, addressed the meeting. He paid a splendid tribute to our esteemed President, Mr. Nolan and we bee-kepers appreciated Mr. Duff's kind words very much. Encouragement was given from the Department he represents and under which bee-keeping comes. With a President thoroughly in touch with the Minister in charge of this department, it seems likely for us to get any needed help. Bee-keeping as a business, in the eyes of the "powers that be" has made wonderful progress during the past few years and bids fair to keep up the pace for some years to come.

A. D. McIntosh, B. S. A., of Sterling, Ontario, told us what we can expect of the District Representatives: "Find out what you want and then ask for it." Mr. McIntosh gave ample assurance that in so far as he is concerned, the things asked for will be given to the extent that lies in the power of the District Representative.

Mr. J. W. Clark of Cainsville, the well known Buff Orpington man, gave a practical talk on Bees, Fruit and Poultry although Mr. Clark said that he would perfer the subject to be headed, Poultry, Fruit and Bees, yet he demonstrated that the right man could be very successful in all three lines combined, no matter in which order the callings were given preference.

Mr. Sladen of Ottawa, lately from England, gave a splendid paper on the subject of Bee-Breeding. Naturally, on a technical subject of this nature, an extensive synopsis is necessary, and as no notes were taken, readers of the Journal will have to wait until the paper is published in full, and it will no doubt be, at an early date. Officers for next year are almost the same as last year. The places of two Directors lately deceased, David Chalmers and Mr. Switzer were filled by other men Mr. Nolan of Newton Robinson, is re-elected president and Mr. Pettit, of Guelph College, is secretary in place of Mr. Hodgetts, who was overburdened with work. The usual resolutions were passed and the meeting adjourned to meet at the call of the Executive.

Engravings for Sale.

We are accumulating quite a large stock of bee-yard engravings and other pictures used from time to time in the American Bee Journal. No doubt many of them could be used by bee-keepers in their local newspapers, on their letterheads, on souvenir cards, or in other profitable or interesting ways. If we can sell them it will help us to pay for others that we are constantly having made and using in these columns.

We do not have a catalog or printed list of the engravings, but if you will let us know just which you want we will be pleased to quote you a very low price, postpaid. Just look through the copies of the Bee Journal and make your selection. Then write to us.

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CONTRIBUTED ARTICLES~

Outdoor Wintering

BY G. M. DOOLITTLE.

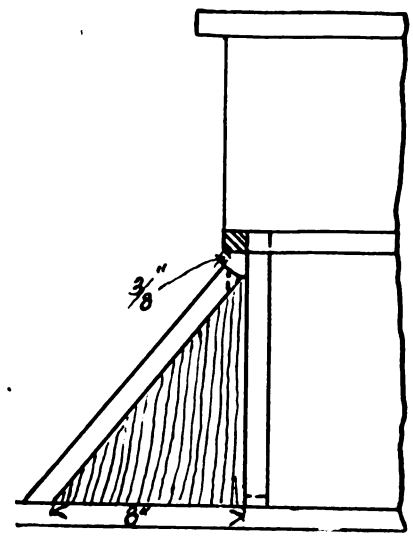
"I live in about 43 degrees north latitude, and have a cellar that I consider unfit for wintering bees. For the the last two winters I have lost heavily by trying to winter my bees therein, so I have concluded to leave them outside this winter. Will you please tell us something about the wintering of bees on the summer stands, as I see you live in about the same degree of latitude that I do. I also note that you often answer questions for different ones in the American Bee Journal."

While I am an advocate of cellar wintering of bees in this locality, and believe that there is a great saving in both stores and bees by so doing, yet if I did not have a cellar suitable for bees, and did not feel free to construct such a cellar, I should certainly winter them on the summer stands. In fact, we have those within 15 and 20 miles of where I reside, who claim that better results can be had by outdoor wintering than through cellaring, as brood-rearing is started from six weeks to two months earlier when the bees are wintered out than when in the cellar, and this early brood causes the colony to reach the flow of nectar from clover in a much stronger condition than when brood-rearing is started shortly before the bees are taken out of the cellar.

There is some truth in this, if the winters are not too severe, but when we have a winter like the last (that of 1911-12), when the bees did not fly after October, and had to exist through January and the most of February in a temperature of from zero to 25 degrees below a large share of the time, the most of this kind of "poetry" seems like idle talk to all who fail to properly protect their colonies left out. A slight protection may be all right for Ohio and Pennsylvania, but in this northern latitude the heat of the bees must be depended upon for warmth; hence the whole plan of wintering must be based on conserving their heat to the largest possible extent.

In my early days of bee-keeping there was a man wintering his colonies outdoors who was very successful, and I went to see him quite often. I remember that he placed special stress upon abundant protection. He said that many who thought their bees properly protected did not realize what true protection was. In those days many acres of timothy grass were saved for seed about here, as we could then raise it cheaper than they could in the West. In threshing this ripened grass for the seed, there was a large accumulation of chaff which was very fine, yet would "stand up" under moisture, keeping light and fluffy so that evaporation was very rapid instead of becoming wet, damp, and soggy as other chaff, especially that from oats.

He used 5 inches of this dry, fluffy chaff around the sides, back, and under the hives, with 8 inches of the same over the top, and between the chaff and the frames of the brood-nest were 2 to 4 thicknesses of old cloth cut the proper shape, from anything which had become valueless for further use in its original form. Over this chaff was a vacant space of 3 or 4 inches, then a roof over the whole hive to keep out the rain and snow. Cracks about one-sixteenth of an inch were left near the "gable ends" of this roof, so that the moisture never condensed on any of the inside parts in the shape of frost to melt during the sunshiny days of winter, and run into the packing, as is usually the case where no special means



MANNER OF PROTECTING THE ENTRANCE FOR OUTDOOR WINTERING.

are provided for the escape of this moisture, which is thrown off by the bees to a greater or less extent in accordance with the amount of honey consumed. Where the weather is very cool, or drops to zero or below for any length of time, the bees consume much stores for "fuel," and with this increased consumption more moisture is thrown off, and in all ordinary ways of wintering this moisture condenses on the inside walls of the hive in the shape of frost, or in the packing where an inefficient amount is used.

On the first mild day when the sun strikes the hive, this frost is turned into moisture, often of sufficient amount to run out at the entrance in the shape of water, or soak into the packing and make the bees uncomfortable during the rest of their confinement.

In addition to this packing and cover, the entrance of each hive was left quite large, and over it was a sort of vestibule or storm-door, made of a piece of board 8 inches wide, and as long as the front of the hive, up to the cleat on which the cover rested. This board was sawed from corner to corner, so that each of the two pieces made of it were at a point at the top end, which went under the cleat, and 8 inches wide at the bottom, resting on the alighting-board, which projected out that far in front of the entrance. On the slanting sides of these two pieces was nailed a board wide enough for the whole length of these slanting sides except ⅛ inch at the top, and long enough for the two uprights to be even with the sides of the hive.

In this way all rain, snow, and wind were excluded from the entrance, as the ⅛ inch, short at the top, came under the projecting cleat, excluding the storms and winds, while it gave plenty of pure air for the breathing of the bees. The packed and properly protected hive was so warm inside, and in the vestibule, that the bees could bring nearly all the dead bees, which died of old age, out on to the floor or on the alighting-board, and the dampness which usually collects where dead bees accumulate on the bottom-board of the hive was avoided. The objection to this vestibule is that when there comes a day warm enough for the bees to fly, it must be removed, or the bees will come out therein and worry themselves to death trying to get out.

But this man said that any of his family could do this were he not at home to attend to such removal himself, exceptionally. By nailing a strip on the cleat on which the cover rested, to give a downward projection of half an inch, this front board to the vestibule might be ⅜ of an inch narrower than the slanting uprights, and the bees would not be shut in, even if there were no one present when it was warm enough for a flight. This man was always successful in wintering his bees, and were I to go back to outdoor wintering, I should certainly try this plan.

Borodino, N. Y.

Freight Rates and Honey

BY B. F. SMITH, JR.

To a very large percent of the honey-producers a freight tariff and classification is something unknown. This statement is based upon instances like the following: A and B met at a convention, and B wanted some basswood honey for his own use, and asked his friend A to send him 100 pounds. As B wanted a cream can, A was to ship it in a new one. The honey came through in good shape, but the freight was $4.18 per 100 pounds because the can was not boxed; while if it had been boxed it would have been only $1.38. They both blamed the railroad.

In another case a farmer moved to a new locality and produced about 1000 pounds of comb honey, but as he had

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no market there, he wrote to a merchant in his old home town and made a sale of the entire lot at a certain price delivered. The shipment arrived in good condition, although the cases were not crated, but the rate was $3.00 per 100; while, if properly packed, it would have been $1.50 per 100 pounds. That man thinks the railroad stole $15.

I read a statement not long ago that "no one but suckers paid the first-class freight rate; because, if they knew how, they could get the article into a cheaper class." I have also heard a great many times that the rates were made as high as the traffic would stand, and while that statement at one time was well founded, it is not true today. The items that are taken into consideration today are weight, size, volume, liability to damage, liability to damaging other freight, equipment required, claims and value. It is not the large shipper, the man who packs his honey carefully and well, who tries to send it to his customers as cheaply as possible, who makes it hard to get a reduction in the honey-rates, but it is the little producer, who does not know how to pack his honey properly.

COMPARING RATES.

Comparing honey-rates with the rates on maple syrup is about as close a comparison as we can find. In car lots maple syrup is 5th class, while honey is 4th. Glycerine, another liquid, but worth a great deal more than honey, and I hardly think the volume is any greater when put into barrels, takes 4th class rate; linseed oil, 5th class; paints in oil, 5th class; syrups of fruit for soda fountains, 5th class. These articles compare with honey in value, weight, bulk, liability to damage, etc., yet all have a cheaper rate.

In looking over the tariffs of one company whose lines traverse Illinois, Iowa, Kansas, Nebraska, Missouri, Minnesota, Wisconsin, South Dakota, Wyoming, Montana and Colorado, and there is quite an amount of honey moved in those States, we find eight special commodity rates on syrups and molasses and one on honey. Seven exceptions to classification on syrups and none on honey.

What causes honey-rates to be higher than on other goods of like nature when put up in the same style package? Honey in glass is billed as 2d class, less than a carload; but crushed fruit, preserves and jellies in glass, 4th class. I once asked a claim clerk the cause of this, and his answer was: "Did you ever see crushed fruit or jellies packed like that?" pointing to a case of honey in Mason jars that was leaking all over the freight house. "Ninety percent of the jellies and crushed fruits that we handle are put up by packers who know their business, but you cannot say that of honey shippers." Just last week I saw a shipment of some 500 pounds of comb honey packed in old oil cases; some of the sections were flat and some on edge, with two or three thicknesses of newspaper for a cushion. Some in topless oil cans and cans set in cases. Cases marked with a lead pencil, and nothing to distinguish the top from the bottom.

Just such cases as this help to keep up the rate. It is scarcely believable the way some freight is offered for shipment, and I am sorry to say some of it is accepted; packages of considerable value wrapped in newspapers and tied with a light string, very fragile goods with hardly any protection.

Many do not realize the amount of business handled by the large companies. Walk into the shipping department of some large shipper and see what they send out daily. Then there are sometimes 50 or more of these large firms at one railway center. Your small shipment may go to the freight house with 20 dray loads of all kinds of freight, checked and receipted for on a platform, placed in the proper car, and also in the proper order in that car. A shipment from Chicago to States in the Rocky Mountains is transferred some two or three times *en route*.

PACKING.

Do not think that because a shipment is going by freight any old box will do. Some writer, not very long ago in one of our bee journals said: "Any old lumber would do for cases for extracted honey." Probably it would if it was just going a short distance without any transfer. Out of five shipments going about 900 miles, with three transfers, three arrived with damage to contents, and one with cans badly jammed. These cases were all built with new lumber, cement-coated nails, and well put up, but I know from handling some of my own cases that they are heavy, and it is very easy to break the case and not handle them very roughly either.

MARKING.

Practically all stations are supplied with marking pots and brushes. Tags should be avoided as much as possible. We receive a great many notices in this division that there is an "over" at a certain freight station without any marks of any kind, giving a description of the contents, and trying to locate the station to which it belongs. All old marks should be removed or blotted out, and agents and freight handlers are not supposed to mark your freight for you. During 1910 one express company accumulated 4395 pieces of express from which marks were gone, and for which they were unable to find owners. They probably paid for the most of them.

My only idea in writing this is that it may help the little producer to put his honey in shape so that when the National tries to get the rates to which we are entitled, the railroads will not be in a position to say, "We cannot give them on account of the large amount of damage we pay yearly on this article."

Cowley, Wyo.

An Easy Way of Getting Wax from Small Quantities of Comb

BY ARTHUR C. MILLER.

Wax rendering on a small scale, as experienced by the bee-keeper of a few colonies, is apt to prove such a sloppy, disagreeable job that it is often shunned after the first trial. The writer well recalls the attempt of one man to get the wax from about a bushel of old, black comb. His wife was away, fortunately, and after getting the fire going well in the kitchen stove, he put on the wash-boiler, half filled it with water, and as soon as it was hot he began putting in the comb. Soon he had a fine, black pudding, and he commenced bailing it out with the laundry dipper, and poured it through the best wire sieve into a nice, clean pail. It dripped on the stove and floor, clogged up the sieve, overflowed, and bedaubed everything he touched. After several hours of hard work, soaked with perspiration, tired and mad clear through, he had a few fragments of a nasty, black substance supposed to be wax.

The next two days were spent in cleaning up, and when his wife returned he had a most beautiful excuse for having bought sundry new household utensils. Now, if you want to get any old combs, just suggest to him that he extract the wax from them, and he will give them to you and then, "with a smile which is childlike and bland," he will softly open his most vicious colony, give it an accidental kick, and as you take a hurried departure you may wonder whether you really heard him say something or not.

But despite his opinions, it really is possible to render a small lot of comb easily and well. The first requisite is a convenient kettle to melt the comb in; the second, a boiler of water; the third, a wooden butter firkin or lard tub; and fourth, a strainer. The latter is a combination of a piece of chicken wire, inch mesh or less, and a piece of cheese-cloth.

The process is this: Fill the kettle half full of water, and as soon as it begins to boil put in the comb, adding a little at a time and stirring it in. When the kettle is nearly full, and the wax and water begin to boil, remove the kettle from the fire and pour the contents onto the strainer. The latter is adjusted in this manner: The wire-cloth is laid over the top of the lard tub and pushed down in the middle until it is basin-shaped; then four or fire wire nails or staples are driven in the edge of the tub to keep the wire from going in further. A piece of cheese-cloth is then spread over the wire-cloth, and the strainer is ready. The contents of the kettle are slowly poured onto this.

When the strainer is about level full it is allowed to drain for a few minutes, then boiling water is poured on, a dipperful at a time, and from time to

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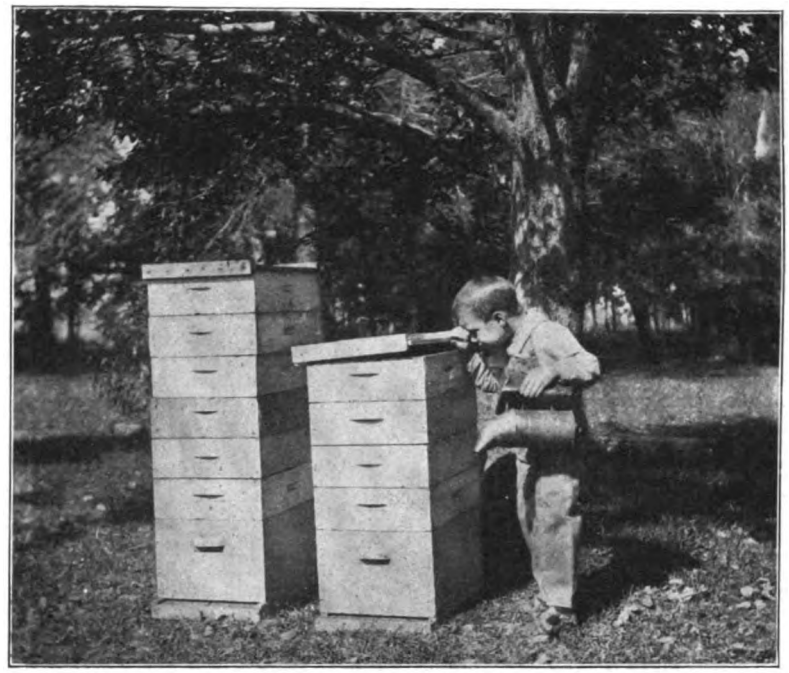
time the mass is gently pressed with a flat stick or paddle. When most of the wax seems to be out (and really is if the water treatment is thorough), the cloth is picked up by the four corners and its contents dumped out, the cloth replaced, and the process continued with more from the kettle. The small amount of wax left in the refuse from the strainer is not worth the labor of recovering.

The larger the tub the more water can be used, and therefore the better the results. The kettle for melting the wax should be only so large as may be conveniently handled and poured from. And if the work is to be done in the kitchen, cover the floor with several thicknesses of newspaper and save trouble from any stray drops of wax. And *never* go out and leave the kettle of wax on the stove.

Refining the wax is merely a matter of remelting it and pouring it through finer and thicker cloth one or more times.

Providence, R. I.



MR. PELLETT'S SON INVESTIGATING.

Can We Permanently Eliminate Foul Brood?

BY FRANK C. PELLETT,

Iowa State Inspector of Apiaries.

While the writer has not had a long experience as an inspector, it has become apparent that the elimination of bee-diseases is no easy matter. If all the people who keep bees were scientific in their methods as are most of the extensive bee-keepers, it would not be impossible. The practical bee-keeper, however, needs no inspector as far as he is personally concerned. Usually he has one or more neighbors who have a few colonies that must be transferred before it is possible to look into them. These same neighbors would not know foul brood if they saw it, and if they knew it was present would make no effort to rid themselves of the disease.

When the disease once presents itself in a locality the only way to get rid of it is to carefully examine every colony of bees far and near. In Iowa every eighth farmer keeps bees. This means that nearly 30,000 farmers must be looked after beside the thousands of town's people who are also bee-keepers. Foul brood is now known to be present in 32 counties, or about one-third of the State. In order to ensure a clean up it would be necessary to inspect all the bees within a radius of several miles of each diseased apiary. Very probably the disease is present in many localities where it is as yet unknown, for I think it is safe to say that not one bee-keeper in ten would recognize it.

Until we get different laws, we will continue to clean up one locality after another, only to have it break out again from some new source of contagion. Personally, I would advocate the passage of a law by the federal congress that would prohibit the shipment of bees from one State to another without a certificate of health signed by some duly recognized State or government inspector. Then we should have State laws similar in intent regarding the transportation of bees from one county to another. I have read the statement from N. E. France, that they have apparently accomplished the result of getting the disease all but stamped out of portions of Wisconsin only to have it reappear from this cause.

In Iowa the bee inspection is in the hands of a State Inspector whose office is separate from that of the State Entomologist. It seems to me that the better way is to place the work under the direction of the entomologist. In most States deputies from his office visit every county every year in connection with nursery inspection. It should be possible to secure men competent to do the work of both nursery and bee inspection. However, this plan could hardly be expected to work unless the State Entomologist had an assistant in apiculture who should devote his whole time to the development of bee-culture and teaching this subject during the school year. He would be directly responsible for the success of the inspection work, and would do a considerable part of it himself. In localities where the disease is present every colony of bees should be looked after until the disease is eradicated. This will require a lot of work, and it will be easier, in my opinion, to get a sufficient increase of the appropriation for the State Entomologist's office to support this additional work than to get a separate appropriation.

The Iowa law, at present, provides that not to exceed $1000, in any one year, shall be expended in bee-inspection. The amount is hopelessly insufficient to do the work needed where there are 30,000 bee-keepers scattered over 56,000 square miles of territory.

The bee-keeping industry in Iowa is of sufficient importance to justify an assistant in apiculture at the State Agricultural College, and the development of a school of bee-keeping together with regular short-course features in this same line. It seems to me that the bee-keepers of Iowa will find this the line of least resistance.

I would like to see the matter of laws relating to interstate shipment of bees, together with uniform inspection laws taken up and thoroughly thrashed out by the National Association at its coming session. It should also be determined whether it is not time to require bee-keepers shipping honey to produce a certificate of inspection. Dr. Phillips called attention some time ago to the fact that disease is being widely spread through interstate shipment of honey from diseased apiaries.

Atlantic, Iowa.

Uniting Bees

BY DR. C. C. MILLER.

In September American Bee Journal, page 273, appears an article on uniting bees in which I disclaimed the ability to write all that could be said upon the subject. That the article was not exhaustive is shown by the fact that a Tennessee correspondent asks for further light, mentioning specifically five different points.

First, the various methods of uniting, and the general principles underlying the same, I hardly know what I can add to what I have already given, page 273.

Second—What are the best times of

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APIARY OF E. VANDERWERKEN, STAMFORD, CONN. "OF UNCOUTH APPEARANCE BUT OF REMARKABLE EFFICIENCY.
(Photographed by Edward F. Bigelow, Arcadia: Sound Beach, Conn.)

the year to unite? That question may be considered from two different standpoints. Viewed from the side of the bees, it may be said that they will unite most kindly when honey is coming in freely, and that for more than one reason; honey is such a plentiful article that they are not suspicious that any one will want to steal it, so they are not in an aggressive attitude; robbing has not been going on, and they are not suspicious of strangers that may enter; they are so busy gathering and storing the precious liquid that they have not time to be on the lookout for intruders. This might be understood to mean that bees should be united only when storing a surplus, which would be a mistake.

In my locality there is gnerally no surplus stored until the flow from white clover. Yet almost any time before that, when bees are flying daily, they may be united just as well as in the clover harvest; for whether they are working on willows, maples, dandelions, or fruit bloom, even if they get only enough for their daily needs for brood-rearing, they are getting enough to keep them fully occupied. I suspect it is the older bees that do most of the fighting, and when there is no work a-field to occupy their minds they are on the lookout for anything unusual and inclined to resent it. The very worst time is probably just at the close the harvest, or indeed at any sudden stoppage of the harvest, for then the field-bees, suddenly stopped from their labors, are trying every entrance, crack and crevice, thus stirring up resistance to any intruder; and of course any added bees are intruders.

The question may also be considered, not with regard to the peacefulness of the bees in uniting, but with regard to the time most profitable for the bee-keeper. Generally two colonies are united because one or both are too weak to be continued profitably alone, and this uniting may be in the fall or in the spring. There is advantage in uniting in the fall instead of waiting until spring; because the united colony will consume less in wintering than the two separate colonies, and also because the united colony is more certain to live through the winter than the two separate.

Third—"In the spring, when you have all the colonies you want, and the bees will keep swarming in spite of all you can do, wouldn't it be good practice to put two or more of these swarms into one hive?" Yes, if you refer to prime swarms only. If you refer to after-swarms, then I must say I am skeptical about their issuing "in spite of all you can do." For you can take the plan so often given in these columns, putting the swarm on the old stand with the mother colony close beside it, and moving the old colony to a new stand some eight days later. And to the question whether in such a case there would be danger of all the queens being killed, I quote tradition as saying no, although I cannot quote from my own experience.

Fourth—If a swarm has been hived a week or more, another swarm will not be as likely to unite with it peaceably as when both swarms are hived on the same day. Still, they may unite peaceably even when a week apart. Neither is the uniting likely to be so successful when one swarm has a laying queen and the other a virgin as when both queens are of the same kind.

Fifth—I prefer the newspaper plan of uniting two colonies to any other, although it is not unlikely I may be a little partial to my own baby. For uniting swarms of the same kind issuing on the same day, of course there is no need of the trouble of the newspaper plan; just dump the two swarms into the same hive.

Marengo, Ill.

Put More Work into Fewer Bees

BY EDWARD F. BIGELOW.

This slogan, originated by the late Mr. Hutchinson, of Flint, Mich., is only partly right, and if accepted literally is, in my opinion, wholly erroneous. To keep more bees is the bee-keeper's

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"Around His Modern, Well-Painted Hives He Puts Protective Packing Boxes."—Photographed by Edward F. Bigelow.)

temptation and danger, unless he will do as Mr. E. Vanderwerken, of Stamford, Conn., does—put more work and thought into the bees themselves. In number of colonies, do not exceed the limit that can receive careful and continuous attention.

Mr. Vanderwerken's apiary of 22 colonies is the most efficient honey-producer for that number that I have ever seen. He has strong colonies, some of them 3 and 4 stories, full 10-frame dovetail hives. He has achieved success; first, by hard and persistent work, and secondly, by keeping the bees warm. His apiary is undoubtedly not intended as an example of spotless whiteness and neatness, but as an example of efficiency. Around his modern, well-painted hives he puts protective packing boxes, with leaves and paper clippings between the walls of the box and those of the hive. To cover the topmost hive he uses the ordinary ½-inch covering board; on that he piles a liberal heap of old carpets and bed-quilts, and over these puts a roof on which he has tacked tar paper. He keeps the bees as carefully protected in the hottest weather as in the coldest winter.

Here, then, are two valuable suggestions: Put more work into your colonies, and keep the bees thoroughly warm during every minute in the year.

Arcadia, Sound Beach, Conn.

Isle of Wight Disease—A New Name for an Old Trouble

BY GEO. W. BULLAMORE.

The literature of bee-keeping in England shows that, from time to time, this country has been swept almost clear of bees. Writing in 1827, Bevan, in "The Honey-Bee," said:

"In the winter of 1782-3, a general mortality took place among the bees in this country, which was attributed to various causes; want of honey was not one of them; for in some hives considerable store was found, after the bees were gone. Some were of opinion that it arose from the preceding being a bad breeding year, and thought the bees died of old age. Others attributed it to the moistness of the spring of 1783, which rendered the providing of pollen difficult, for without pollen no brood can be reared. The difficulty of collecting pollen was ascribed to the continual closing of the flowers over the anthers, the want of sun to burst the anthers, and the washing away of the pollen by the frequent showers after they did burst. The fatal influence ascribed to the wetness of the spring of 1783 seems to be improbable; though the wet might have affected the quantity of bees bred, it was not likely to put a stop to their breeding altogether, and the young bees ought at any rate to have escaped the desolating evil, if it were old age alone; yet wherever the mortality once made its appearance every bee became its victim."

Modern bee-keeping commenced with the introduction of the frame hive in 1860, and the first few seasons were wet and cold. We find the bee-keepers of that period relating their experiences in the columns of periodicals, and using the language of the modern bee-keeper who describes his losses from Isle of Wight disease. The most noticeable feature seems to have been crawling bees, but the bees also dwindled or were found dead in a heap, on the floor-board.

There were serious losses during a run of wet years that terminated in 1883, and during the abnormal bee-seasons that have been experienced in the present century similar troubles have afflicted the bee-keeper. The bee-keepers of the Isle of Wight were the first to succeed in calling attention to the deadly nature of the malady, and have therefore been credited with having originated it.

According to systematic meteorological observations we get long irregular spells in which wet years predominate, alternating with similar spells in which dry years predominate. Bee-keeping is boomed in the dry years, and troubles other than foul brood are kept in the background during the wet spell. The Isle of Wight disease has always been with us and, favored by wet weather, has from time to time

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swept across the country. Unfortunately modern methods of bee-keeping materially assisted the present epidemic.

Under the old system, islands of healthy bees were left by the disease which passed around them. In 1911, healthy apiaries still existed on the Isle of Wight. Such apiaries quickly restock a district in favorable seasons, but under the modern system, bees are imported into a dwindling apiary, and the disease is kept going until the apiaries which escape the first wave of contagion are also involved.

Microscopic examination of a crawling bee shows that the cells lining the stomach are being destroyed by a parasite. These parasites, which are in the cells, are believed to be the young stages of *Nosema apis*, a protozoon first described by Zander in 1907. The protozoa bear the same relationship to animal life that the bacteria bear to vegetable life. Unfortunately the life history of nosema cannot be studied apart from the living bee, but it is thought that these young forms, after changing into spores, escape into the bowel and are voided during cleansing flights.. Bees so infected must be a potent source of infection in wet seasons when much of the water used in the hives is obtained from paths and foliage in or near the apiary. Fresh apiaries become involved through the straying of bees and swarms.

There is good evidence that affected bees sometimes do good work in a favorable season, but the stock is liable to die suddenly after being packed down for the winter. In other cases they come through winter and then dwindle badly in the spring. A heavy loss of bees is the only symptom.

Nosema disease has been called malignant dysentery, but there is no evidence on this side that dysentery is an invariable accompaniment of the trouble. That the unhealthy condition of the bee is conducive to dysentery I feel well assured. My own personal experience is that dysentery is associated with the presence of yeasts which I have always found in large numbers in dysenteric matter.

From all countries where bee-keeping is practiced we get accounts of troubles which are suspiciously like nosema disease, and I think there is great danger of this malady being spread through its real nature not being understood. Wholesale losses of colonies are attributed to the bees being old, and never to the bees being sick.

Spring dwindling is sharply marked off from paralysis, although it cannot matter much whether the bee is unable to fly away from the hive or unable to fly back to it. Losses are attributed to the use of poisonous sprays on fruit trees, and although arsenic is bad for bees, I cannot forget that before the days of fruit spraying, poisonous nectar or frozen pollen was postulated to account for "poisoned" bees. The possibility that losses were due to the malignancy of a neighbor has not been overlooked.

As to plants, a list that included all those which have been suspected at one time or another of poisoning bees, would include most plants that yield nectar. The fact that a large number of colonies are attacked at about the same time seems to be the foundation for these statements.

A feature which was supposed to distinguish the Isle of Wight disease from all other diseases was the rapidity with which it spread through an apiary or a district. The true explanation of this seems to be that the early cases attracted no attention. These, however, caused a general infection, and with the advent of conditions unfavorable to the bee, the disease rapidly manifested itself in the affected colonies. The destruction of the first colony that shows signs of paralysis is also of little use, as the ground is soiled, and some of the sick bees have probably been attracted to other hives.

Little is to be gained by the haphazard use of drugs. We know practically nothing of their action on the bee, and the impossibility of administering them in definite quantities renders the bee an unsatisfactory patient. Reported cures must be received with caution, as enquiry may show that the colonies to which the testimonial relates died out after it was given. The only satisfactory procedure appears to be the clearing out of the apiary, and the restocking it with healthy bees after disinfecting hives and appliances. If the apiary can be started on a fresh site so much the better. If this is not possible, the site should be kept clear of bees as long as possible, and might be dug over with advantage. Then if your neighbor does not insist on keeping up a dwindling apiary, success as a bee-keeper may again be possible.

Some of the early cases of Isle of Wight disease were diagnosed as paralysis or maikrankheit. Paralysis is said to be a disease of warm climates, but its ravages in Florida and California may have some relationship to rainy seasons and swampy ground. It is hoped that observations may be made from this standpoint. If this disease is specifically distinct from the Isle of Wight disease, some definite means of distinguishing the one from the other is badly wanted.

Albury, Herts, England.

[Is it not probable that the different names, May disease, mal-de-maggio, maikrankheit, paralysis, vertigo, and the so-called constipation, are different names for the same malady, in perhaps more or less virulent stages?

L'Apicoltore, of Milan, a few years ago, gave out reports concerning this disease, showing it to be very destructive in the province of Ancona. Hamet, in his Cours D'Apiculture, reported the same disease, under the name of vertigo, as very damaging in northern France, between 1850 and 1865. In both cases, some kinds of blossoms were blamed for the trouble. But the apparition of the same disease both in Florida and California, where the floras are entirely different, and its existence in our northern States, occasionally in spring, would indicate that we must seek the original spread of the trouble more in peculiar atmospheric conditions than in the nature of the blossoms which furnish the stores.

Bevan, himself, whom our correspondent quotes, mentions the name of "vertigo" to describe a trouble much resembling the Isle of Wight disease: "This disorder is said to occur more between the end of May and the end of June, and to be marked by a loss of power in the hind quarters, by a dizzy manner of flying, and by irregular motions, such as starting, falling down, etc."

The fact that *Nosema apis* has been fed to colonies, in some cases, without producing the disease indicates that conditions must be favorable to its spread before the disease becomes dangerous.—EDITOR.]

Use of the Bee-Escape for Extracting Honey

Read at the Illinois State Meeting

BY L. C. DADANT.

To the enthusiastic bee-keeper, work about the apiary has its fascinations as well as its drawbacks. In my judgment the most fascinating is putting on supers when the flow is on, and when the bees are fairly rolling in the honey. The most disheartening is feeding in June, when all colonies are on the point of starvation, and seem likely to starve for the rest of the summer. But the hardest and most trying work is taking off honey by brushing bees after the crop is over and every bee is intent on doing all the mischief it can.

Through the columns of the bee journals, and at various convention meetings, noted and practical bee-keepers have made the assertion that they would rather take off honey by brushing than by using bee-escapes. I believe the conditions under which these men work must differ markedly from the conditions with us. Very probably they take off their honey at a time when there is still a light flow, and it may be that their super combs are well sealed throughout. Then the bees are more easily removed or smoked down than when there are empty, or partly empty, combs in the supers. Even with combs well sealed there is bound to be trouble.

When bees are crowded for room they nearly always build bur or brace combs and fill them with honey. Taking out the frames from every super to brush the bees, or even taking the supers apart is bound to tear up some comb, make the honey run, daub up some bees, and very quickly start robbing. No sooner is robbing started

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than some of the quietest colonies will become veritable demons, and the pleasure of taking off honey will become the most strenuous job one can undertake.

Taking off honey when there is still a substantial flow is relatively pleasant work, as there are few cross bees and little robbing going on. But in a honey dearth, when one has to brush and brush, when a hive has to be kept open for fifteen, twenty, or even thirty minutes at a time, that is when one really earns the honey he is getting. To my mind the bee-escape is one of the most useful of modern bee-implements. With an apiary of 30 to 100 hives, yielding from one to five tons of honey, we feel that we can make more rapid headway, save time, trouble, loss and temper by using the bee-escape throughout.

There is little doubt that more honey is taken from the hives today without the use of bee-escapes than with them. Probably the most serious objection offered to them by the practical apiarist is that they are not handy for use in out-apiaries. The fact that they have to be put on the hives the day before extracting necessitates an extra trip. When the apiary is at a great distance this is certainly objectionable. Many extensive bee-keepers, however, are now using automobiles or motor cycles, and with the help of these machines the time lost in going back and forth is reduced to a minimum, and can easily be made up in the time saved by using the escapes.

In putting on escapes we usually begin about 2 or 3 o'clock in the afternoon, depending upon just how warm the weather is. Should the weather be exceedingly hot, and the hives exposed to the sun, there is danger of the surplus combs melting down and being destroyed. One must remember, of course, that as soon as the escape-board is put on, the circulation in the upper part of the hive practically ceases. As soon as the bees in the upper story find themselves shut off from the entrance they seek a place of exit.

By next morning they are down in the brood chamber, and the supers are free of bees and ready to be taken off. We have found that on cool nights bees go down better than on warm nights, as they seek the cluster for warmth. However, if it is very cool, and the temperature hovers around the freezing point, the bees will not go down very well, and very often a small bunch will cluster in the upper super for warmth.

That the supers should be bee-tight is a very important item. Just as soon as the escape-board is in place, and the bees start down, the supers are left practically without any defense, and the robbers are not slow to discover this and make merry with the stores they find so easily.

The time it requires to put on escapes is from one to two minutes per hive, depending upon how tight the super sticks to the hive, and just how good a joint the super makes with the escape. With us there is an over-abundance of propolis, and the lower edge of the super is well gummed. If the weather is warm the propolis mashes out of the way, but if the weather is cool it sometimes forms lumps and holds the super up from the board high enough to allow a bee to pass under.

Before we used the bee-escapes in our apiaries we were always sure to have several bad cases of robbing at extracting time. Since we have adopted their use it is a very uncommon thing to have a single colony in danger at any time, and the honey-house is not so heavily besieged by robbers. Nearly every bee-keeper realizes what a bad case of robbing means, and dozens of anti-robbing devices have been invented with more or less success. The best safeguard is to nip it in the bud and prevent any bee from securing stolen sweets.

When the escape is put under several supers in one tier, the bees are a little slower to vacate them than when put under but one super. Very often, however, we have put them under four and five supers (shallow supers), and have had the bees go down in 12 to 18 hours. Usually the bee-escapes are put on all of the hives at one time, and the single supers removed first, leaving the higher tiers for the last, so as to give ample time for the bees to descend. Occasionally a colony refuses to leave the supers; several things may be responsible for this. Brood in the supers is certain to keep the bees above, as they always protect their brood and keep it warm. The presence of a queen in the super will always prevent their descending. A hole in the bee-escape board, allowing the bees to pass back and forth, destroys the value of the escape. This objection may seem unnecessary, but it is not uncommon for the escape-board to either have a small knot hole or a crack caused by the shrinkage of the wood. A particle of comb, a dead bee, a cobweb, or a straw in the escape spring renders the escape ineffective.

Another objection to the escapes raised by many bee-keepers is that in cold weather the honey becomes stiff as soon as the bees have left the supers, making extracting a much harder job. To my notion, handling heavy honey is preferable to brushing bees that are numb and fly just far enough to light and crawl over the bee-keeper.

These drawbacks are usually very easily overcome. When queen-excluders are used there is never any fear with either the queen or brood above. With a little care the escape-board can be made bee-tight, and the springs kept free of obstructions.

When the escape is used there is no need of handling the frames in the apiary, as this is all done in the honey-house. When the escapes are first put on, the lower super is pried loose, and if there is any dripping honey it drips on the escape-board and is all licked up clean by morning, or by the time the supers are ready to be taken off.

I am unable to give any information in regard to using bee-escapes for the production of comb honey, as our experience has been with extracted honey exclusively. However, it seems to me that they would be even more indispensable to the comb-honey producer than to the bee-keeper who runs for extracted honey alone.

Hamilton, Ill.

DR. MILLER'S ANSWERS

Send Questions either to the office of the American Bee Journal or direct to DR. C. C. MILLER, MARENGO, ILL. He does NOT answer bee-keeping questions by mail.

Feeding Bees in a Cellar

Is there any possible way of feeding bees in a cellar? I think some of my colonies are too short of stores for winter.

My cellar is rather warm this year on account of a new furnace. I have a separate apartment for the bees with plenty of fresh air, but it is still too warm at this date; the temperature keeps up to 55 and 65 degrees. The bees are very quiet yet.

I thought of giving each colony syrup separately in a sort of little tray so arranged that the bees could not drown. Would the bees come to get this syrup or could it be given in some other way? How and when could it be done so that half of the bees would not rush out of the hives? My hives are put in two rows, one on top of the other and all the covers are off. STE. MARTINE.

ANSWER.—With a big lot of fresh air for the bees you will likely find that they will winter well at 55 or 60 degrees, although they will consume more stores than at a lower temperature. Still, as you say, the increasing cold will bring down the temperature. Better not let it go below 45 degrees.

If I understand correctly, your hives are raised in front by 1-inch blocks, and that makes a space of at least an inch under the bottom-bars—possibly an inch and a half. That allows you to put a shallow dish of feed under the frames, and if your colonies are reasonably strong they ought readily to come down to the feed at 55 or 60 degrees. If it is much colder than that, and the colonies are rather weak, they will not be likely to come down to the feed. Instead of the proposed wire-screen over the syrup you may do better to cover the syrup with cork-chips. You will get these from your grocer. He gets them as packing for grapes in cold weather, and generally throws them away.

If feeding below does not prove a success, you can feed above. Edwin Bevins reports excellent success with lump sugar. Wet the lumps by sprinkling water upon them, but do not make them wet enough to dissolve the sugar. Then lay the lumps directly on the top-bars over the cluster of bees.

Wintering—Space Above the Frames

Is the following plan good: I have a ⅜-inch board over the brood-frames. There is a ⅜-inch strip all around the outside of the board, and at each end a 2x7 inch opening. A piece of wool carpet is placed over the whole board. Also a center opening in the board 5 inches in diameter is closed by the carpet. This hole is made just right to set a feeder in, and can be used to give winter feed without disturbing the cluster very much. The whole top is then packed with a 6-inch chaff cushion.

I think the end openings in the board are large enough to carry off all the condensed moisture that may accumulate. Some bee-keepers advocate putting ½-inch strips over the frames, and the carpet immediately over this. Which plan do you think best? or is one as good as the other? My bees are packed in winter-cases with 6 inches of

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planer shavings all around the hives. I bridge over the entrance and allow a ⅜x6 inch space. What do you think of this manner of wintering? INDIANA.

ANSWER.—Your plan should work well, as also the plan you mention with the ½-inch strips. Very likely you would find no material difference in results between the two. Your plan does not give quite so free a passage for the air, but likely it gives passage enough.

A Frame-Lifter

Is there anything like a frame-lifter on the market? I was asked by an old bee-man to invent a small tool, one which a man can put into his pocket, but make it pull the frames out easily.

I made a little tool from sheet steel. It cuts the glue between the frames, and in a moment you can pull any frame with one hand and place the same frame back again. Your hand does not come anywhere near the frame or bees. The tool is 8 inches long, and weighs about 12 ounces. It grips the frame in the center, and holds it so well that one cannot pull it off with two hands. At the same time all you have to do is to put the frame back into the hive with one hand, touch a little catch with the finger, and off comes the tool.

Would a tool of this kind be worth anything to the bee-men, and do you think it would pay to have it patented?

WISCONSIN.

ANSWER.—I don't think a tool of the kind is in common use in this country, although frame-tongs are common in Europe. They are, however, I think, generally for handling frames in side-opening hives. A tool that would allow one to lift out a frame with one hand would likely be valued by some. Othes would obiect that generally both hands are free anyhow, and that with one hand there would be more danger of killing bees, since there would be more danger of striking against the other combs or against the hive-ends. It is a little doubtful whether it would be worth while patenting such a tool, but then I don't know.

Doolittle Plan of Honey-Production

Have you ever tried the methods for honey-production, described by G. M. Doolittle, in his book "A Year's Work in the Out-Apiary?" If not why not? IOWA.

ANSWER.—I have never followed the plan fully in all its details, excellent as it is. There are good plans sometimes given that it may not be the best to follow; sometimes because although they may suit my conditions the plans I am already following may seem so good that I do not think I would gain enough to make a change. Yet I suppose I have suffered more from being too changeable than from being too conservative.

Ill-Natured Bees—Saving the Scrapings of Comb Honey

1. It is said that people are better natured after having eaten, and if this is so, is it not possible that the same might apply to a colony of bees. It often happens that a colony which stores a large surplus has a disagreeable disposition. Is it not possible that this is due, at least partly, to the fact that such a colony tries to get along on as little food as possible, and so we have some colonies which store a large surplus, and are ill-natured colonies.

2. I once melted up some scrapings which I got from some sections and other sources to get purer propolis, as I thought, since I supposed all but the foul matter, such as wood, would melt; but to my astonishment only about one-half changed to a liquid, and the rest, which I suppose was the propolis, changed to a black mass.

When I strained it I found that about one-half of it was bright yellow beeswax. Would it not pay for extensive producers of comb honey to heat and press their scrapings when preparing their crop for market, and so get a large amount of wax?

CALIFORNIA.

ANSWERS.—1. Your facts are all right, but you are hardly making the right use of them. It is true that bees, like folks, are good-natured when well fed. It is also true, perhaps unfortunately, that some of the best storers are ill-natured. But it hardly follows that they are in their worst temper when gathering rapidly. Indeed the opposite is true, Neither does it seem likely that the bees are such poor economists as to put themselves on short rations when all their strength is required to store the flood of sweets that is offered.

2. Yes, you are right. No doubt many a pound of wax is thus wasted that might be saved.

What is the Value of a Swarm?

Will you answer the question contained in the last line of Edward F. Bigelow's article, on page 330 of the American Bee Journal; that is, such a swarm as he described (or any other) in September. I take it that to get the true value of such a swarm they would have to be hived in an empty hive the same as a June swarm. To help them would be adding artificially. An answer might be of benefit to beginners and slow witted people like myself. BADGER.

ANSWER.—A slight change in the form of the question referred to will make it read:

"If a swarm in July
Is not worth a fly,
Can anybody remember
What they are worth in September?"

Professor Bigelow, of course, refers to the old rhyme:

"A swarm in May is worth a load of hay;
A swarm in June is worth a silver spoon;
A swarm in July is not worth a fly."

That jingle must have been made for some locality with which I have no acquaintance. Taking it, however, at its face value, if it teaches anything it teaches that the worth of a swarm as the season advances is a constantly diminishing quantity. In July it gets down to the zero point, after that it becomes a negative quantity, by September becoming a good deal less than nothing. And that might be literally true at the time the doggerel was composed, when all that was done with a swarm was to dump it into an empty box or skep and leave it to its own devices. For the swarm would be worthless, and the mother colony would be damaged by the exodus. It is just possible—not probable—that in the present instance there was an exception, and that the flow was so heavy and continued so late that left to themselves the swarm might have built combs and stored enough for winter. The point that you have in view, probably, is that such a late swarm would be of no value, only as value would be given to it by what the beekeeper should do for it; and in a general way you are right. Yet if it should be furnished with combs and stores, so as to winter over, the value of the colony in the following spring might be greatly beyond the value of the combs and stores furnished. Yet, again, it might be more profitable still to return a September swarm to the parent colony.

White Pine or Cypress?

Which do you consider the best and most lasting hive material, white pine or cypress? IOWA.

ANSWER.—My guess would be that pine should have the preference, but I have had no experience with cypress.

Cement for Honey Jars

Kindly inform me how the cement is made which is used for sealing honey jars. PENNSYLVANIA.

ANSWER.—Generally, I think, no cement is used. But I have known it to be used made of rosin and beeswax, equal parts, or with a smaller proportion of wax. I suppose paraffin might also be used.

A Problem in Cellaring

Will you give me some light on how to carry bees into the cellar without the bees flying out and stinging. For years it has been a mystery to me how to carry bees in, and sometimes out, without closing the entrances. Is there a difference in bees, handling, location, or what? I am curious to know.

First, I will give location of bees, cellar, and mode of carrying them in. Then if you run out of "don't knows," you may let me have a guess on the trouble. The bees are in 8-frame and Danzenbaker hives (100 colonies) at an out-yard, located on a farm. They are in an orchard about 12 rods from the cellar. On account of mice in the cellar I am obliged to have wire, four meshes to the inch, over the entrances when in the cellar, the same being tacked on early in the fall. Then a common lath is notched out ⅜x4 inches, is center nailed over the wire, and afterward pried off in the cellar. On account of inequality of bottoms this entrance closer does not always fit tight against the wire-cloth or hive.

The bees are carried to the cellar on what you would probably call a stretcher, 2 colonies to a load. No matter how careful we were to carry them the 2 rods, the bees would be all over us, with the entrances open. Consequently the entrances have to be closed *tight, very tight* when we carry bees in. It takes about as much time to see that the hives are closed tightly as it does to carry them down cellar. Probably 25 colonies are carried near the cellar-door and set down, then those first carried are taken into the cellar (still closed), and later, after the bees have quieted down some, the entrances are opened 1 to 1½ inches. Sometimes this mode is followed.

Probably 25 to 30 colonies are carried down and piled near the door. Then the entrance closers are removed in about one-half hour or more, a wet rag is placed over each entrance, and the hives carried in. But the trouble with this plan is when the wet rag is removed, the bees pour out of the hives over me and everything else near. Many take wing and are lost. Of course, this is the worst. Sometimes by being very careful not many will leave the hives.

I have tried every way known to carry them in. I tried going slow and careful, but all to no use; they are sensitized beyond degree. If you want a start of these bees you may have all that you can carry 2 rods without bees escaping with the entrance open. As to strain of bees, these bees have been bred from queens of about all of the best queen breeders. But of late years I have followed your plan and reared queens from the best honey-gatherers in the apiary, and I am with you in that every year. My best yields are always from my home-bred hornets. One yard I winter outside, but this yard I place in the cellar, and every year it is a task I dread; it is worse each year. This season the bees were cellared Nov. 23. The distance from the cellar makes the carrying by one man of one colony too slow, as it takes nearly one day for two men. Thanks for any light you can give me. IOWA.

ANSWER.—I will tell you just as nearly as I can just how my bees were carried into the cellar this year. They were carried in Nov. 25, in the morning. The cellar had been wide open the night before. Although that does not make so much difference at carrying in as it does at carrying out, still it is better to have the cellar cool as possible, so the bees will settle down quietly when brought in. The average distance of the hives from the cellar-door was about 10½ rods. Then they were carried a rod or so farther to their place in the inner room. Two able-bodied men took about two hours to carry in the 93 colonies. One of them was experienced at the business; I think the other had never carried bees before. Each man picked up his hive, carried it in his arms into the cellar, and set it in its place. You may judge of the quietness of the bees when I tell you that no sort of protection was used in the way of veils, gloves, or smoke, and the entrances were left wide open. There was one exception: I had failed to staple on the bottom-board of one hive, and when the bottom dropped off I had to use smoke to fasten it on. But I must hasten to add that this year was exceptional. I think they were never carried before without veil or gloves, for at least a few colonies would prove troublesome. I don't know what made the difference. Perhaps this year the bees were in an unusually dormant condition.

Now I am not able to say just why our bees should act so differently. Some bees are more irritable than others; but I doubt if your bees are worse than mine in that respect. Perhaps one secret is in having the bees undisturbed for a long time before they are carried, and then being set down so quickly that they do not have time to get fully waked up. When they are in the most quiet condition it takes two or three minutes to get them thoroughly aroused, and in that time they are in place in the cellar. If they are stirred up ever so little, they are easily stirred up a few minutes later, perhaps hours later. You say you tack a lath with a ⅜x4 opening at the entrance, prying it off in the cellar. Closing up so warm is hardly a good thing, but the important part is when you tack it on. I should think it ought to be at least 24 hours before carrying.

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But I'd rather not close the entrance that way at all.

I have carried bees on a stretcher, as you do, and sometimes it works well; but if the bees are easily stirred up the extra jarring they get when set on the stretcher, even if the stretcher be cushioned, and the longer time it takes, makes trouble. That setting down for a time near cellar-door will not do unless bees are shut in securely.

You have tried wet rags after the bees are riled. Try it before. Have the cloths dripping wet, close the entrance before the hive is touched, and take it away when the bees have had time to quiet a little in the cellar. That, of course, means you must have two or more such cloths. It is possible that my larger entrances make a difference. With your ⅜x4 inch opening very few bees will be affected by the water; with my 2x12 inch opening 16 times as many will meet the chilly cloth to be repulsed by it.

I don't know for sure about it, but I've a sneaking notion that if I should accept your challenge to take all I could "carry 2 rods without bees escaping with the entrance open," you would have to buy bees to make a fresh start. And I don't know why you can't do as well as I can.

Is there Sale for Propolis?

Is there any sale for propolis, and, if so, tell me where I can sell it? I have heard it is worth quite a bit, but never could find out where to sell it, or how much it is worth.

KANSAS.

ANSWER.—I very much doubt if there is any market for propolis, but if any one knows of such a market let him say so. If you have propolis that has been saved from scraping frames, sections, etc., you may find it a paying job to melt the beeswax out of it.

Feeding in a Cellar—Drone-Laying Queen

1. I have one colony I transferred in August after they had thrown off their second swarm. It was late in September before I saw any evidence of a queen. About this time I saw the queen, seemingly a very large black one.

Shortly after this drones began to hatch out in large numbers, and there are a great many in the hive now, though the last day or two many were killed off. Saturday, the 14th, I found a queen in front of the entrance dead.

Can you tell me what your long experience would lead you to think was the cause for these things? I fed this colony quite freely in September and October.

2. I have two light colonies that need feeding. Can I put them in a cellar and place feed in a feeder, the feeder being in a screen wire box one foot square, and fastened over the entrance in such a manner that the bees cannot get away from the hive? Will they feed and then return to the cluster? These colonies are no better than nuclei, but have splendid young queens, and I have no other bees to double with them, and wish very much to save them.

3. Will bees start brood in the cellar if stimulated with feed while there?

ILLINOIS.

ANSWERS.—1. It looks very much as if the queen had failed to mate and was a drone layer. Her death was no loss (assuming she was the dead queen), as a drone-laying queen is at least a little worse than no queen. The bees are now so old they are of no value, and the best thing is to brimstone them so as to stop their consuming stores.

2. The probability is that the bees will hardly reach the feed so far away, and if they should they might not get back. They may reach feed close under the bottom-bars, but are more likely to reach food placed over. Wet cube sugar, or lump sugar, but not enough to dissolve it, and lay it on the top-bars.

3. Possibly, if the feeding be continued a long time; but probably not.

Winter Feeding in Arkansas

In this climate, bees fly nearly every day in the year. However, there is nothing for them to get. Now I find that my bees are light in stores. I winter on out-door stands and I would like to feed them. Would you feed sugar or honey? I have some broken comb honey, and also some nicely sealed extracting frames with slightly bitter honey—our fall honey is all bitter—have never fed any of it. Will you kindly advise what is best in my case? ABKANSAS.

ANSWER.—Very likely that bitter honey in sealed combs is just the thing. While the bitterness hurts it for market, I have never heard that it is bad for bees.

Feeding Liquid Feed in Winter

Is it too late to feed liquid feed in pepper-box feeders now? If so, why? ILLINOIS.

ANSWER.—Yes and no. It's better to feed now than to let the bees starve; but it's not considered a fair deal to put off feeding till bees are in winter quarters. It is generally difficult to get them to take the feed in winter, and the disturbance is not good for them.

Ontario County, N. Y., Meeting

The annual meeting of the Ontario Co., N. Y., Bee-Keepers' Society will be held in the Court House at Canadaigua on Jan. 7, 1913. A program is being prepared. F. GREINER, *Sec.*

REPORTS AND EXPERIENCES

Likes the Journal

I enjoy the Bee Journal more than any other paper I take. C. M. PAGE.

East Corinth, Vt.

Prospects Good for White Clover Next Season

We had a good season, and bees have gone into winter quarters in fine shape. Best of prospects for a good white clover crop next season. JNO. S. COE.

Boyce, Va.

Poor Season Just Passed

We had a very poor honey season here, little surplus, and that is very dark honey-dew. Colonies are in very good condition for winter (heavy). F. G. ASHBAUGH.

Avalon, Mo., Nov. 13.

California Report

As we have been very much favored with some very early rains, the prospects are very bright for a good honey season the coming year. The bee-keepers are preparing for the next crop, getting hives, supers and sections in readiness for the new year and its possibilities.

The demand for frames, and prices on the other bee-supplies, would warrant that the bee-men anticipate a good year, and we wish them a "corking" good one.

JOHN C. FROHLIGER.

Berkeley, Calif., Nov. 20.

Cement Nails—Wintering

On page 342 of the American Bee Journal for November, Wm. Muth-Rasmussen writes in favor of bright or uncoated nails. I must say I agree with him. In using nails from ¾ to 3 inches in length, there has not been a time when I did not prefer the bright nails, but could not get them; and then think of the cement-coated fingers, worse than propolis. Perhaps if there are more bee-keepers of the same mind, some dealer will keep the bright nails in stock.

I would like to know why the bees left in a hive from which a swarm has issued are called the parent colony. In nine weeks there would be nothing in the old hive but the daughter and grandchildren of the old queen. Where do you get the parentage?

All bee books and papers advise a temperature of 40 to 45 degrees, Fahr., for cellar wintering. My bee-cellar averages 33 degrees, Fahr., through the winter. The bees have wintered successfully in this cellar for years. I use a single-walled Langstroth hive, with plenty of ventilation top and bottom. In 1900, as an experiment, I wintered a very weak colony in this cellar. Only a quart of bees on nine frames covered by two thicknesses of burlap and no top. They came through all right.

South Bane, Vt. GEORGE E. MORRIS.

Another Bee-Song

(*To the tune of "Casey Jones."*)

At the Colorado bee-meeting of Dec. 12 and 13, 1912, a bee-song, by Eva D. Henthorne, was sung by 5-year old Mildred Rose Henthorne. It elicited much applause. We give one of the stanzas and the chorus:

William climbed up the cotton-wood tree,
He hustled up the ladder that swarm to see,
The neighbors knew by the way the smoke rolled down,
That the man in the tree-top was William Brown.
He climbed up within two feet of the place.
Forty thousand bees stared him right in the face.
The limb gave way and he said, "I have to drop,
And I'm going to hit the ground sir, with the bees on top."

CHORUS—

William Brown, going to hit the gronnd, sir
William Brown, with the bees on top,
William Brown, going to hit the ground, sir,
And he's going to hit the ground, sir, with the bees on top.

Bur Marigold or Spanish-needles (Bidens)

Regarding Spanish-needles, I enclose a letter from Mr. W. D. Darby, of Marionville, Mo., with whom I have been corresponding regarding this plant. He sent me seed of the tall variety, or Spanish-needle proper. I raised about two dozen very fine stalks 4 feet tall. Many of the branches and each stalk carried over 100 buds, which, by the way, do not open out. Mr. Darby says they are rich in nectar in his section, but I could not find a trace of nectar in those I raised. The plant I wanted is what he calls Spanish aster, and I hope to get seed of this variety from Mr. Darby in the spring, enough for a start.

There are thousands of acres in and around Chicago, swampy, and apparently suitable for this plant, and it was my ambition to give it a start, and replace this wild, swamp grass with the finest honey-plant the world has ever known.

The honey is of the "color of gold," has a wonderful "honey taste," and the more you eat the more you want to eat, as it lacks that "cloying taste" mentioned by our corn-syrup friend, Marion Harland. It is very thick, too thick to run, does not candy as early as white clover, and weighs about 13 to 13¼ pounds to the gallon; 5 gallon cans run close to 65 pounds. I understand the honey is in much demand commercially for its highly saccharine contents.

It blooms in Missouri about Aug. 15 to 25, and lasts until killing frost, which is about Sept. 20 to 28, making the flow from three to four weeks in duration. When at its best it yields a *flood* of nectar. I have had colonies store as much as three gallons in seven days.

Another feature of value is that it gives honey after the season has closed with alfalfa, white clover etc., and does not interfere with the regular season of other plants. Exceedingly dry weather cuts down the surplus yield, but it never fails to produce an abundance for winter stores.

Chicago, Ill., Dec. 5. W. O. H. CULLEY.

Following is the letter from Mr. W. D. Darby, of Marionville, Mo.:

Dear Sir:—As to the Spanish-needle, you sent a tip-top sample, for the blossoms of this variety never open out, but are rich in nectar, and the bees work on them in that bud form. The other is a species of the above, but of the aster type, and it is a nectar-bearing plant, also. I enclose two buds

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of the Spanish-needle, as I have them by the acre here, and one of the aster; here known as Spanish aster. It is fine for nectar. We have three varieties, but the above is the best; the third is a smaller aster, and has a little different seed, and is not so good to produce nectar.

I had a good honey-flow this season, my home yard having produced about 1400 pounds of white clover honey and 600 pounds of Spanish-needle; also some smartweed honey, which is fine. The Spanish-needle is also fine, and as yellow as gold.

W. D. DARBY.

[The above letters refer to some varieties of *bidens* under the name of *asters*. We must not confound the names by using popular misnomers. Both asters and bidens belong to the Composite family. Both yield honey. The flowering yellow bidens may be called aster, because its rays radiate as do those of the aster, the latter name being derived from the Greek word, which means "a star." But asters have white, purple or blue rays, while the bidens' blossom either has yellow rays or is devoid of rays. There are dozens of varieties of asters, in almost all kinds of soils, from the richest to the poorest.]

Do Bees Fly in a Straight Line?

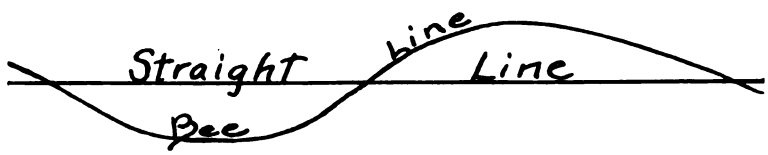
In answer to Dr. Miller's question, "Do bees fly in a bee line?" I am quite sure my bees do not find their way home as Dr. Miller suggests by memory of some route they have traveled before. I have found, by close observation, that my bees come pretty near flying, as the old saying is, "Straight as a bee line." I mean by that, that their general course is straight. This part of Montana is hemmed in by great mountain ranges on all sides, and this gives me a peculiar location in regard to atmospheric conditions, and also an ideal chance to study this phase of the bees.

There are days here, in the height of the honey-flow, when it is perfectly still, not a breath of air stirring, and being at an altitude of 3500 feet, the air is quite rare, and one can see at a great distance very easily.

The past season my bees were working very busily on a field of mustard half a mile north of the apiary. It was a solid mass of yellow blossoms when there was scarcely anything else in bloom. I started from my yard afoot toward this field, and I could hear a steady roar of bees all the way, and could see great numbers of them in the air. When I got there they were on the blossoms by the thousands. This flow kept up for ten days or two weeks. Just as it went out of bloom a good-sized field of alsike clover came into bloom about a mile west of the apiary.

Now, did they go and come by the way of this mustard field in their flights to the clover? Not a bit of it. I could follow them by sight and sound straight to the clover. I was across the mustard field four or five times during this flow, and there was not a bee to be seen or heard on the way there or at the field.

Some time after this quite a quantity of sweet clover came into bloom about 1½ miles east of the apiary, and the same thing was repeated. A bee-line is not a straight line, but the course is straight. My bees go and come to the fields in a line like this.



They would cross a straight line about every three or four rods. The farthest point in the bee line to the straight line would be eight or ten feet.

FRANK MORGAN.

Corvallis, Oreg., Nov. 18.

Wants, Exchanegs, Etc.

[Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

BEES AND QUEENS.

GOLDEN QUEENS that produce 5 and 6 band bees. Untested, $1.00; Tested, $3.00.
Robert Inghram, Sycamore, Pa.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
1Atf 70 Cortland St., New York City.

IMPROVED golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers Send for price list. E. E. Lawrence,
1A8t Doniphan, Mo.

QUEENS — Improved red-clover Italians, bred for business; June 1 to Nov. 15. Untested queens, 75c; select, $1.00; tested, $1.25 each. Safe arrival and satisfaction guaranteed. 1Aty H. C. Clemons, Boyd, Ky.

GOLDEN and 3-band Italians, also gray Carniolan queens. Tested, $1.00 each; 3 or more 90c each. Untested, 75c each; 3 to 6, 70c each; 6 or more, 65c each. Bees per lb., $1.25; nuclei per frame, $1.50. A discount on orders booked 30 days before shipment. 1Atf
C. B. Bankston, Buffalo, Leon Co., Tex.

WE will requeen all our 2000 colonies this spring. We offer the one-year old queens removed from these hives at 40c each; $4.20 per dozen; $30 per hundred—delivered any time before June 1. Your money back if not satisfied. First come first served. Book orders now. Spencer Apiaries Co.
1Atf Nordhoff, Calif.

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WANTED—Comb and extracted honey, and beeswax. Write us. Hildreth & Segelken,
265 Greenwich St. New York City.

WANTED—Comb, extracted honey, and beeswax. R. A. Burnett & Co.,
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HONEY FOR SALE—Clover honey of the finest quality in new 60-lb. cans at 9 cts. per pound. 8Atf J. P. Moore, Morgan, Ky.

FOR SALE.—1½ carloads of choice sage honey by the can or case. Samples of honey and desirable California souvenir free for a stamp. C. W. Dayton, Chatsworth, Calif.

FOR SALE.—Water White Alfalfa, Light Amber Alfalfa. Put up in any size packages, any quantity. Write for prices.
11Atf Dadant & Sons, Hamilton, Ill.

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FOR SALE—A full line of Bee-Keepers' Supplies. Agents' prices. Save freight.
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FOR SALE—Empty second-hand 60 lb. cans two cans to the case, good as new, 25 cents per case. C. H. W. Weber & Co.,
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1 Ideal Winter-Case, complete	$2.50
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100 Section-Holders, scalloped	2.00
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1 Champion Smoker	.70

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Medium Brood, per pound	.59
Thin Surplus " "	.66
Extra Thin " "	.69

Discount on larger amounts.
Satisfaction guaranteed or money refunded. R. H. Schmidt,
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C. E. Shriver, Boise, Idaho.

SITUATIONS WANTED.

WANTED—Position in an apiary by deaf mute, 25, who is nearly completing a course in bee-keeping. Address, 1Alt
X03 American Bee Journal, Hamilton, Ill.

POSITIONS WANTED—One Apiarist "Queen Breeder," one Assistant Apiarist desire engagement to work one or more apiaries on salary or share the 1913 season. West of the Rocky Mts. preferred. References exch.
Apiarists, Rt. 3, Box 9 B, Oroville, Calif.

SITUATION WANTED—By a young man who has successfully passed his examinations after taking a course of lectures and demonstrations in Apiculture at the Ontario Agricultural College. Any one desiring help of this kind for the season of 1913, kindly correspond with Morley Pettit, Provincial Apiarist, Ontario Agricultural College, Guelph, Canada. 1A2t

POULTRY

ROSE COMB White Leghorn cockerels $1.00 each. Ellen Thornburgh, Perry, Iowa.

INDIAN Runner Ducks, light fawns, also dark penciled, white eggers, $1.00 and up.
R. O. Dickson, Box 61, La Harpe, Ill.

FOR SALE — White-egg strain Indian Runner Ducks, White Orpingtons, White Wyandottes, Houdans, Bronze Turkeys. Ducks, $1.25 each. A. F. Firestone, Broadwell, Ohio.

WANTED—Bee-men and poultry-men to write for my special proposition on the Eureka Case for wintering bees; and White-Rock eggs or stock before Jan. 15. A surprise for you. B. T. BOSSERMAN.
1Alt Rt. 16, Williamstown, Ohio.

MISCELLANEOUS

GUMMED LABELS in two colors of all varieties, 33 cts. a 1000 up. Pearl Card Co.
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NEW CROP white sweet-clover seed, 4 lbs. by mail, prepaid, $1.12; 50 to 100 lbs., 15c per lb., hulled; unhulled, 3c less. Alfalfa seed, same price. R. L. Snodgrass,
Rt. 4, Augusta, Kan.

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We will sacrifice for cash a large stock of Lewis Beeware recently purchased from the Bankruptcy Court. Send for itemized list. Fantus Bros.
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FEED your hens cut green bone and get more eggs. With a Crown Bone Cutter you can cut up all scrap bones easily and quickly, and without any trouble, and have cut bone fresh every day for your poultry. Send at once for free catalogue.
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Best Made Lowest in Price

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For 1913, we will offer you Dovetailed 8-Frame Hives at rock bottom prices, 90c each and up. Tell us how many you want. Also, we make the Fireless Chick Brooder. 25 chick size, $1.00; 50 chick size, $2.00.

CHESTNUT HILL MFG. COMPANY
Biglerville, Pa.

American Bee Journal

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HAMILTON, ILLINOIS.

First Lessons in Bee-Keeping, by Thos. G. Newman, revised by C. P. Dadant.—Intended mainly for beginners. Nearly 200 pages, and over 150 pictures. Bound in strong paper cover, showing bee-brood in all stages of development from the newly-laid egg. This book contains the foundation principles of bee-keeping, as its name indicates. Price, postpaid, 50 cts.; or free with the American Bee Journal one full year if paid strictly in advance—by either new or renewal subscription at $1.00.

Fifty Years Among the Bees, by Dr. C. C. Miller.—340 pages, bound in cloth, and illustrated with 112 half-tone pictures taken by Dr. Miller himself. It is a good, live story of successful bee-keeping by a master of the subject, and shows with clearness just how Dr. Miller works with bees and produces tons of honey. Price, $1.00, postpaid; or with the American Bee Journal a year, $1.80; or given FREE as a premium for sending 3 New subscriptions at $1.00 each.

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Langstroth on the Honey-Bee, revised by Dadant.—This classic on bee-culture has been entirely rewritten. Fully illustrated. No apiarian library is complete without this standard work by the "Father of American Apiculture." Over 500 pages, bound in cloth. Price, $1.20; or with the American Bee Journal a year, $1.90; or given FREE as a premium for sending 4 New subscriptions at $1.00 each.

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A B C & X Y Z of Bee Culture, by A. I. & E. R. Root.—Over 500 large pages describing everything pertaining to the care and management of honey-bees. It is a veritable encyclopedia on bees. 400 engravings. Bound in cloth. Price, postpaid, $1.50; or with the American Bee Journal a year—both for $2.25; or given FREE as a premium for sending 5 New subscriptions at $1.00 each.

Advanced Bee Culture, by the late W. Z. Hutchinson.—The author was an extensive bee-keeper, and a practical, helpful writer on bees and bee-keeping. Over 200 pages, cloth bound. Price, postpaid, $1.00; or with the American Bee Journal for a year—both for $1.80; or given FREE for sending 3 New subscriptions at $1.00 each

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The Honey-Money Stories.—64-page booklet of short, bright items about honey. Has 23 fine illustrations, and 3 bee-songs. Its main object is to interest people in honey as a daily table food. Price, postpaid, 25 cents; or with a year's subscription to the American Bee Journal—both for $1.10. Two copies for 25 cts.

The Emerson Binder.—It has a stiff board outside like a book-cover, with cloth back. Will hold easily 3 volumes (36 copies) of the American Bee Journal. Makes reference easy, and preserves copies from loss, dust, and mutilation. Price, postpaid, 75 cts.; or with the American Bee Journal a year—both for $1.60; or given Free as a premium for sending 2 New subscriptions at $1.00 each.

A Modern Bee Farm, by Samuel Simmins The author is a live English bee-keeper. He has kept up with the progress in this line not only in his own country but all over the world. His views are determined, but very well taken, and his points are made with an accuracy which is convincing. Cloth bound 470 pages. Price postpaid $2.00 or with the American Bee Journal one year both for $2.75

British Bee-Keepers' Guide, by Thomas W. Cowan.—This is without doubt the standard work for the English bee-keeper. It is very much condensed, containing 170 pages, and is nicely illustrated and well bound. Price, postpaid, $1.00; or with the American Bee Journal one year, $1.75.

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Alexander's Writings on Practical Bee-Keeping.—The late E. W. Alexander is the man who kept 700 colonies of bees at his home place in New York. He wrote a series of articles which have been published in book form. They discuss bee-keeping in broadest terms. 96 pages, paper bound. Price, 50 cents, postpaid; or with the American Bee Journal one year, $1.25.

A Year's Work in the Out-Apiary, by G. M. Doolittle.—The author is an experienced bee-keeper, who tells in this little book the requirements necessary for keeping bees away from home. For any one who is intending to keep bees on a large scale, this book will be invaluable. paper bound, contains, contains 60 pages. Price, 50 cents; or with the American Bee Journal one year, $1.25.

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HAMILTON, ILLINOIS.

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American Bee Journal

HONEY AND BEESWAX

SAN FRANCISCO, Dec. 20.—The demand for comb honey has not been so marked, although plenty has been offered, and the prices are as follows: Fancy No. 1, 15@16c; No. 2, 13½@14½c; dark comb, 11@12c; water-white extracted, 8@8½c; light amber, 7½@8c per lb; amber, 6@7½c; lower grades, 5@6c. Beeswax, 27@30c for nice yellow wax, and 23@26c for dark. JOHN C. FROHLIGER.

LOS ANGELES, Dec. 18.—There is only a small quantity of honey on the Coast unsold, but it should move out rapidly, as it can be bought at very reasonable prices, considering that the market is bare of white and water-white sage honey. We quote: Light amber sage, 6¼c per lb.: light amber alfalfa, 6c per lb.; white to water-white alfalfa, 7@7¼c per lb. All f. o. b. Coast, dollar freight rate by rail.

Light amber sage, 6½@6¾c per lb.; f. o. b. Steamer San Diego, with 60c freight rate to New York. Honey has been moving forward steadily, and the indications are that stocks will be practically exhausted long before any new honey is available.

HAMILTON & MENDERSON.

CINCINNATI, Dec. 17.—There is a big supply of both comb and extracted honey, and the sales are slower than they have been for some time back. This is quite natural, for Christmas candies and nuts have the attention of the buying public at this time of the year. We are selling fancy comb honey at $3.75 to $4.00 a case; and our best grades of extracted honey in 60-pounds cans at from 8½@10c a lb., according to the quantity and quality purchased. For choice bright yellow beeswax we are paying 28c a pound delivered here.

THE FRED W. MUTH CO.

KANSAS CITY, MO., Dec. 18.—The supply of honey is equal to the demand. The demand is fair for both extracted and comb. We quote as follows: No. 1 white comb, 24 section cases, $3.15 to $3.25; No. 2, $3.00; No. 1 amber, $3.00; No. 2, $2.50 to $2.75. Extracted, white, per pound, 8@8½c; amber, 7@8c. Beeswax, 25@28c.

C. C. CLEMONS PRODUCE CO.

INDIANAPOLIS, Dec. 17.—White comb sells at 18c in 10-case lots; No. 1 white, one cent less. Amber comb in slow demand, and at lower figures. Best extracted sells at 11@12c in 5-gallon cans. Comb honey seems to be in excessive demand, and very little is now being offered by producers. Beeswax is in good demand, and producers are being paid 30c per pound. WALTER S. POUDER.

CHICAGO, Dec. 18.—Honey has sold well during the first half of December, but stocks are still heavy, and prices being made at less than quotations herein given by people who do not make a specialty of honey. Hence, it is difficult to give exact figures. No. 1 white comb honey ranges from 15@16c per pound, with the fancy bringing 17c per lb. No. 2 white from 10@14c per lb. No. 1 to fancy amber, 13@15c per lb. Dark grades of comb and lots out of condition sell at from 8@10c per lb. Extracted honey in new cans and cases, white clover and linden brings 9@10c per lb. Other grades of white honey about 8c per lb., with amber grades ranging from 7@8c per lb. Beeswax steady at from 30@32c per lb., according to color and cleanliness. R. A. BURNETT & CO.

NEW YORK, Dec. 18.—Comb honey is getting well cleaned up, and prices are very firm on all grades. While some small shipments are coming in, the bulk of the crop has been marketed, and from now on receipts will be next to nothing. We quote fancy white at 18c, No. 1 white at 15c, No. 2 white at 13@14c, dark and mixed at 12c per pound.

The market is easy on extracted honey, and prices are gradually declining, especially so on Porto Rican and other West India honey. Receipts of a new crop have been quite large recently, and will probably continue so for several months to come. The demand is very light, hence the decline in prices. We quote West India honey at 75c per gallon, white clover at 8½@9c per pound, California light amber sage at 9@9½c, buckwheat at 8c per pound.

HILDRETH & SEGELKEN.

DENVER, Dec. 19.—We quote comb honey in a jobbing way at the following figures: Strictly fancy white, $3.15; No. 1, $3.05; choice, $2.85; No. 2, $2.70. Extracted honey, white, 9c; light amber, 8c; strained, 6½@7c. We pay 26c in cash, and 28c in trade for clean yellow beeswax delivered here.

THE COLO. HONEY-PRODUCERS ASS'N.
F. Rauchfuss, *Mgr.*

CINCINNATI, Dec. 20.—The demand for comb and extracted honey is light with a good supply. No. 1 white comb honey sells in large lots at $3.60 per case of 24 sections; there is no demand for off grades. White extracted honey in 60-pound cans is selling from 9½@10c; light amber in barrels, 7@7½c; in 60-pound cans, 8@8½c. Beeswax in fair demand, sells at $31 per hundred.

The above are our selling prices, not what we are paying. C. H. W. WEBER & CO.

BOSTON, Dec. 18.—Fancy white comb honey, 16@17 per lb.; No. 1, 15@16c. Fancy white extracted, 10@11c; light amber, 9@10c; amber, 8@9c. Beeswax, 30c. BLAKE-LEE CO.

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AMERICAN BEE JOURNAL

FEBRUARY 22,138 1913

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American Bee Journal

AMERICAN BEE JOURNAL

PUBLISHED MONTHLY BY
American Bee Journal
1st Nat'l Bank Bldg. Hamilton, Illinois

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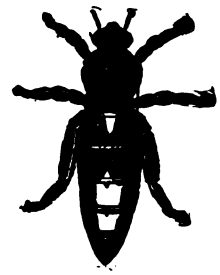

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AMERICAN BEE JOURNAL—

Gentlemen:—Last October I purchased three queens of you for my experiments with different queens, and wish to ask you if queens of this season will be of this stock? One of the Queens is the most remarkable queen I ever owned for prolificness, which she transmits to all her daughters.

Riddle, Oreg., July 4, 1912. L. W. WELLS.

AMERICAN BEE JOURNAL—

Gentlemen:—The queen you sent me came in good condition. She was one of the best I have ever bought. I have her introduced and she is doing business as if to the manor born. I want another of those beautiful queens as soon as I can possibly get it for making up my fair exhibit. Please send a fine one. Such queens certainly advertise your business.

Darlington, Wis., July 31, 1912. C. R. BRIDGMAN.

AMERICAN BEE JOURNAL—

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AMERICAN BEE JOURNAL, HAMILTON, ILLINOIS

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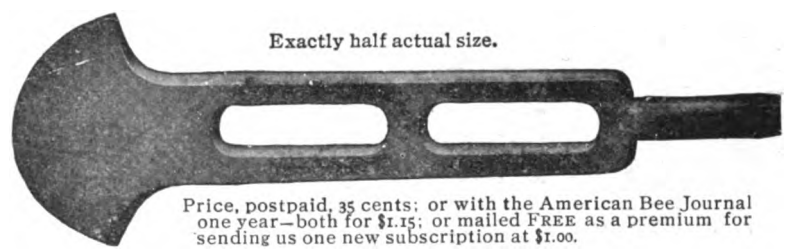

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American Bee Journal, Hamilton, Illinois.

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G. ROUTZAHN, Biglerville, Pa.

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"Yours truly,

"A. B. STEELE, West Hartford, Conn."

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American Bee Journal,
Hamilton, Illinois.

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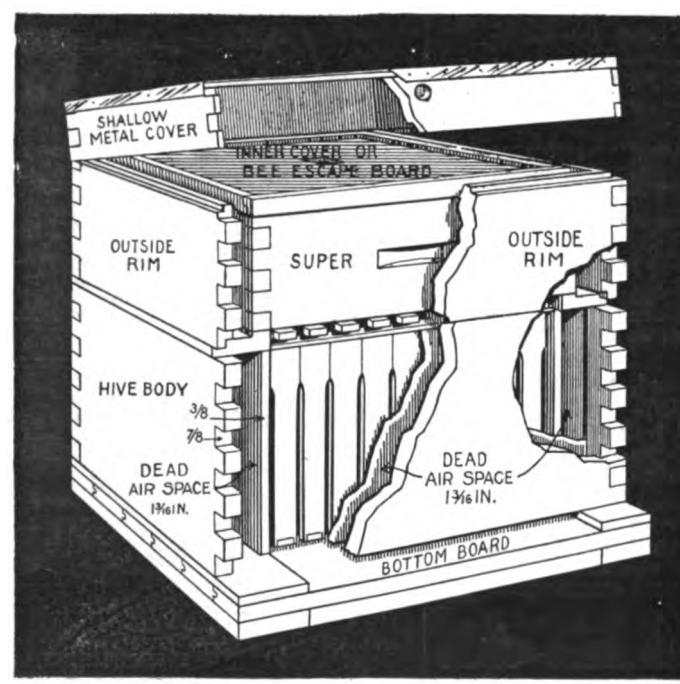

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C. P. DADANT, Editor.
DR. C. C. MILLER, Associate Editor.

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EDITORIAL COMMENTS

Bees in Switzerland

In an article in this issue, Mr. Adrian Getaz shows his usual good sense of observation and deduction. Without taking sides entirely with him on this subject, we feel that we must corroborate his statements and those that he quotes of Doolittle and Benton concerning the remarkable influence of the drone upon the progeny's characteristics. Italian queens mated with common drones, under our observation, have invariably produced cross-tempered bees, while the reverse was the case in the mating of Italian drones with queens of common stock.

That the Europeans in general prefer the production of extracted honey is true. A less value is put upon the fancy comb honey than in the United States. Extracted honey is the honey for the masses, for it can be produced much more cheaply and in greater quantities, other conditions being equal. With its production, the bees are less inclined to swarm, for they may be supplied with empty combs, *ad libitum*, and the hives may be made spacious enough to accommodate the most prolific queens.

The Swiss prefer their own bees to other races. We read somewhere, not long ago, that this was due to the peculiar climate and altitude of Switzerland Moist, cool weather prevails, and the climatic conditions are very different from what they are on the south of the Alps, in what is called Italian Switzerland, where the summer climate is much more similar to that of the United States.

Dead Larvae Among Live Brood

E. D. Townsend, in the Bee-Keepers' Review, page 124 (1912), urges the breeding of a strain of bees which shall be immune to bee-diseases. As an argument in favor thereof he offers that some colonies are more prone to disease than others, and in that connection has the following which will especially arrest attention:

"It is nothing strange to open a colony of bees in summer and find a hundred or more dead larvæ in the combs, and this neither of the two diseases known as foul brood. It will be later removed by the bees and disappear. Perhaps the next colony opened will show no signs of dead brood in their combs, and would be a more desirable colony to breed from, from a brood disease standpoint."

The first thought upon reading that paragraph, if one knew nothing about the writer, might be, "Whoever wrote that knows very little about bees, and has made a general conclusion upon very small premises," But E. D. Townsend is not that kind of a man. He is a man of long experience, whose word passes current for its face value. There is no room to question that in his experience it is a common thing to find a colony free from foul brood, and yet with 100 or more dead larvæ scattered among the living ones. Has anything of the kind been published before? If so, it has escaped our observation.

The question arises, whether the same thing has occurred to others who are less careful observers than Mr. Townsend, or whether it is something peculiar to Mr. Townsend's bees. The fact that only part of Mr. Townsend's bees are affected leaves it possible that elsewhere none are affected. In any case the matter is of so much importance that we should have as much light upon it as possible. Have others had a like experience? If so, may we know something of the cause and remedy?

Wintering on Summer Stands

Many bee-keepers are adopting the method of moving from four to six hives close together and sheltering them in a rough outer-case, filling the space with forest leaves, chaff, straw, or other material. A very cheap outer enclosure can be made of wire-netting surrounding the hives, the space filled with warm, dry material, with a broad roof of coarse lumber covering the whole. The wire-netting, such as is used for chicken fences, does not need to be more than 30 to 36 inches in height. It has the advantage of occupying but little space when piled away for summer.

Cause of Many Eggs in a Cell

An Idaho friend sends a clipping from the Gem State Rural, which contains the following inquiry:

"Please tell me what was wrong with a swarm of bees I lost this summer. The first I noticed wrong, the queen was laying from one to as high as 100 eggs in one cell. She filled every empty cell in the hive the same way. Only a few eggs seemed to be fertile; those were drones. In about three weeks I looked into the hive only to find a handful of bees and no queen."

In reply, the Editor quotes a corres-

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pondent who "expresses the view that the queen was probably a drone-laying queen. However, he can offer no special opinion as to the matter of her laying from one to 100 eggs in a cell."

The sender desires an opinion from this quarter. If I may be allowed a guess in the matter, I should guess it was a case of laying workers, possibly preceded by a drone-laying queen. It is a common thing for laying workers to lay a plurality of eggs in a cell. Generally, however, this plurality will be found in queen-cells or drone-cells, while possibly only a single egg will be found in each worker-cell. Sometimes the first intimation of the presence of laying workers is the finding of a lot of eggs in one or more queen-cells. It is just possible that very careful counting might have reduced that "100 eggs in one cell" to a smaller number, for it is not the easiest thing to count such eggs.

As to Bee-Terms

Among editors of bee journals none is more wide-awake than Rev. J. G. Digges, editor of BeeKeepers' Gazette and Irish Bee Journal. He is not only up to date, but sometimes ahead of date. Witness the word "beekeeper" which he uses. No such word is to be found in the dictionaries; perhaps not in any dictionary. Instead of that the word "bee-keeper" will be found. But Editor Digges says it ought to be "beekeeper," and with him "beekeeper" it is. If he has no authority for the word, he has justification for it. When two nouns are used together to name a single object, it seems the right thing to join the two words by a hyphen as soon as the use becomes common, or even before it is common. Later, the hyphen drops out and the two words are written together as one. Thus a house keeper would be written "house-keeper" for a time, and then "housekeeper," as it now appears in the dictionary. By the same rule "bee-keeper" should become "beekeeper" whenever its use is common enough, and in all conscience it seems to be common enough now. Dictionaries record what is usage; as soon as others join Editor Digges in allowing bee-keepers to do without a hyphen, no doubt the word "beekeeper" will appear in the dictionary.

Knowing this up-to-date character of Editor Digges, one who opens to page 107 of the Beekeepers' Gazette, will be somewhat surprised to find "honey bee," not a single time, as if a typographical error, but a number of times. To keep company with it, "humble qee" appears on the same page. What authority has he for anything of the kind? The dictionary gives "honey-bee" and "humblebee." Think of the inconsistency of a man so far ahead of the dictionary as to write "beekeeper," and then so far behind the times as to write in two separate words what the dictionary joins with a hyphen, and then to disjoint another which does not have even a hyphen!

If that sharp-witted Irishman has any authority, any justification, any reason for his course, let him produce it. If not, a prompt apology will be expected at this office, postage prepaid.

Has Honey Advanced with Other Food Products?

The high cost of living is in the air nowadays, and it is natural that the bee-keeper should inquire whether he is getting his share of the advance. It may be of interest to see how market quotations of honey compare during a few past years, taking the same month each year, say September. New York and Chicago may be taken as representative; at least they are two of the most important markets. Taking four years, beginning with 1909, the highest quotations are as follows:

	N. Y. comb	N. Y. extracted	Chicago comb	Chicago extracted
1909	15	8½	16	8
1910	16	9½	17	9
1911	16	10½	18	9
1912	16	8½	18	10

If we lump together the four quotations of each year we get:

1909	47½
1910	51½
1911	53½
1912	52½

According to that the increase for the period from 1909 to 1912 is only 10 percent. That does not compare very well with the 25, 30, or more percent advance of most other eatables.

There may be some good reason for all this, yet it hardly looks as if the bee-keeper is getting all that should be coming to him. But just how the thing can be remedied is one of the things that "no fellow can find out."

United effort is probably the only possible and evidently distant solution of the problem.

A Venomous Error

Some errors die hard. Errors apicultural seem especially tenacious of life. One is reminded of this upon reading in a leading apicultural journal, in a scientific article, "Then the cell is sealed after the bee has deposited in it a drop of poison." Just exactly how the drop of poison is deposited in the cell is not stated, but a full statement, more or less according to popular belief, would run something like this: "The poison of the bee's sting consists of formic acid; formic acid is contained in honey; the formic acid in honey is dropped into the honey from the bee's sting just before the cell of honey is sealed." Of those three statements, the central one is true, sandwiched between two errors.

A few years ago it was shown—was it by Dr. Langer?—that the poison of the bee's sting was something other than formic acid. Even if that poison were formic acid, pure and simple, is there a particle of proof for the brazen assertion that just before a cell of honey is sealed over the bee drops into it poison from its sting? In the honey harvest thousands of cells of honey are sealed over in a day. If each cell has a sting thrust into it before the sealing it ought not to be a difficult thing to see it. But no one has ever yet claimed to have had a sight of the performance.

Lately it has been shown by Reidenbach that instead of formic acid being derived from the bee either through its sting, its blood, or in any other way, it is developed in the honey itself by exposing to the air a thin layer of honey. What more satisfactory proof could be asked?

Yet for years to come we are likely to be told: "Just before a cell of honey is sealed over a bee drops into it a ration of formic acid from its sting?"

European Foul Brood

The article on another page by L. Harris, will be read with surprise by those who are somewhat familiar with the literature of European foul brood, as it has generally appeared in this country. Yet close readers will be somewhat prepared for the surprise by having read what was said by Morley Pettit, lately quite closely in accord with the present article. It is difficult to comprehend by those who are familiar with European foul brood in the United States, how it can be possible for any one to say "the poorest quality of glue is quite fragrant in comparison with an advanced case of European foul brood.....and if one gets close down to the entrance and can exercise his olfactory powers, it can be detected even if there are only a few cells diseased." The writer does not know just what Mr. Harris would call "an advanced case" of European foul brood, but is certainly quite familiar with cases having "only a few cells diseased," and would say that in such cases not only is it not possible to de-

American Bee Journal

ect the disease by an odor at the entrance, but not even if the diseased comb be held close to the nose. Yet when two such men as Mr. Pettit and Mr. Harris make statements it will hardly do to set them aside with a wave of the hand. It is greatly to be desired that the matter should be thoroughly thrashed out by competent hands, and satisfactory explanation given for such widely divergent views.

Bee-Diseases in England

England has not, as yet, any law concerning bee-diseases. In the British Bee Journal of Nov. 28, a correspondent opposes the proposed legislation. The ability of this man can be judged by the fact that he holds that bee-keeping in fixed comb hives, or in skeps, is "the most reasonable and the most profitable form of bee-keeping." However, we must acknowledge that he strikes the right spot when he says of expert inspectors: "Unless these men have had the practical experience of managing numbers of colonies successfully, they are surely not fit to be sent out to exercise compulsory powers over those of their neighbors; but if they have had such experience, they must be worth a great deal more than they get."

This is the most important point in making and enforcing laws on any question. The man who is intrusted with the execution of the law must be a practical man with plenty of experience in the line in which he is to work, and if he is such a man, he should receive ample pay for his work.

There is no doubt that laws are needed, and that where they are properly enforced by competent men, they do a great deal of good, so it is out of the question to agree with the above named writer about the inexpediency of laws on bee-diseases, just because their enforcement may be intrusted to incompetent men. This applies as well to laws on any subject where questions of health are involved. The improper enforcing of a law does not make that law improper.

Improvement of Bees

The Editor asked Dr. Miller whether, in his opinion, we had best continue much longer the discussion of the non-improvement question, which seems to him rather a loss of time. We ask the Doctor's pardon for printing his private reply. It is short and to the point:

"Of course it won't do to overdo the non-improvement discussion, and you can choke it off at any point you like. The thing that I have felt important was for every one of the rank and file to breed from his best stock, with a lot of gain to be made by it. I do know that I made a very material gain. Within two years I have had stock from others, but nothing that would get within sight of my old hornets. If only they were not so *hornety!*"

The Parcels Post

The discussion of a question of general interest like the parcels post is hardly of the province of a bee journal. Yet it is of such vital importance to our bee-keepers that we may be forgiven for giving it additional notice. We have much to learn from our European friends on this subject, from their failures as well as from their successes.

The British Bee Journal for Dec. 12 contains a short mention of a package of honey in tin having been sent by parcels post and damaged along the way so that half of the honey was gone; very probably with great damage to the mail. The accident is ascribed to the policy of abolishing hampers and replacing them with sacks. In the number of Dec. 26, page 513, a reply is made, stating that the hampers are "coming back again."

In this country of haste and hurry, where one baggage-man does the work of three or four, and where laws had to be made punishing with heavy fines the "baggage smashers;" where a trunk, in one day's journey, gets worse worn than in a year's travel in Europe, we are accustomed to the swinging of the mail-sacks as if they were base-balls or foot-balls. It seems quite the thing for a man as practical as Doolittle to say as he did, in the November number, page 388: "Of course comb honey will never be handled by mail very much on account of the liability of breakage....." So we are *stupefied* to see the parcels post preparing to handle eggs. But, why not? And why not comb honey? Why cannot Uncle Sam do our shipping better than those Express companies which have been robbing us so many years? Why could we not get better treatment from our own men than from the management of corporations?

The new parcels post is a very "clumsy, inadequate affair." True, but it is an entering wedge. Let us use it and take patience. Sooner or later we will have a uniform rate for all things, except a few unmailable articles, and we will be able to learn all the regulations without having to read a whole book of more or less rational exceptions.

The parcels post is our creation, and we, the people, ought to be able to improve it as we go. It is true that most of us need to be more thoroughly informed of our needs and of the remedies. As once wrote Montesquieu: "In a country where the people is sovereign, the education of the least citizen is as important as that of the heir to the throne in a monarchy."

Sawdust Versus Cinders

In our correspondence this month is a letter from a bee-keeper who has tried sawdust to keep the grass down in front of his hives. It proved a failure. There is one great objection to sawdust. In very dry weather a spark from the smoker may set it afire. Cinders are surer and safer.

Marketing Honey

An excellent article on this subject, written by J. C. Frohliger, of California, was read before the Stanislaus Bee-Keepers' Association and reproduced in the California Cultivator of Dec. 12. Contributions of this kind should be more general, for they enhance the value and the demand of honey by calling attention to it. When so much money is spent upon more or less injurious products like tobacco, whiskey, and cheap candies, it ought not to be difficult to increase the sales of "the sweetest of all sweets."

Feeding Bees in Cellar

Our readers will appreciate the excellent article by Mr. Miles on the use of smoke and the feeding of bees in cellar wintering. We have never needed smoke in putting the bees in the cellar, because we have always done the work on a cold day, and have cooled the cellar beforehand, as Mr. Miles aptly suggests. But when taking them out we have often found it necessary to use smoke in exactly the way that he recommends.

At the Ohio meeting a few days ago, we heard Editor Root, of Gleanings in Bee Culture, recommend the use of snow, thrown upon the entrance, to keep the bees from trying to emerge while the hives are being carrried in, in cold weather. He explains that the snow melts away after the hives are in the cellar, and does not cause any inconvenience. However, there are many instances when snow is not to be had, in our latitude, even in cold weather. Its use would also be impossible if we remove the bottom-boards, which we consider a good practice unless, like Dr. Miller, we have a deep space between the bottom-bar of the frames and the floor of the hive. In his case, it would take too much snow to fill the depth of the entrance.

As to feeding in cellar, we can an-

American Bee Journal

swer Mr. Miles' question on candy feeding in the affirmative. We have often used it on colonies that were short of stores, either in-doors or out-of-doors, and it works splendidly, with the advantage that it does not excite the bees. It may be laid right over the frames above the cluster, and they will come up and cover it. It will slowly disappear, fulfilling its mission. The recipe is short, and may be found in the Langstroth-Dadant book, paragraph 611:

"Add water to sugar and boil slowly until the water is evaporated. Stir constantly so that it will not burn. To know when it is done, dip your finger first into cold water and then into the syrup. If what adheres is brittle to the teeth, it is boiled enough. Pour into shallow pans, a little greased, and, when cold, break into pieces of suitable size."

You may use sheets of paper instead of pans, and may divide the cakes evenly by marking them before the candy hardens. Any young lady who has made "fudge" can make good candy for bee-feed. Of course, as with everything else, it must be made right.

Mr. Miles' suggestions, however, are all practical, and no one will regret following them.

MISCELLANEOUS NEWS ITEMS

Beet Sugar Kills Bees.—That beet sugar is fatal to bees and cane sugar is not, is the conclusion of Prof. J. G. Sanders, of the Department of Entomology, University of Wisconsin, who, next semester, will have charge of a new bee-keepers' course at that institution.

Of the 40 percent of bees in the State which died last year, a large percentage were starved, he says. He believes that bees can live on cane sugar, but die at once if fed on beet sugar. The danger to bees in beet sugar, he believes, arises from some chemical constituent that makes it deleterious. He said the time is coming when an investigation will be made, and intimated he would not be surprised if beet sugar was found to be harmful to human beings.—*Exchange.*

Eastern Illinois Meeting.—Mr. H. S. Duby wishes us to announce as part of the program of the Eastern Illinois meeting, on Feb. 4 and 5, a half-hour debate between himself and the Editor of the American Bee Journal, 15 minutes each, on "Small *vs.* Large Hives." The Editor had thought of excusing himself from attending this meeting, on account of going to so many, but this might look as if he were "scared," and it would never do. So the challenge is accepted. The two Frenchmen will fight it out.

The Chicago-Northwestern Meeting.—The Chicago Northwestern Association held its 16th annual meeting at the Great Northern Hotel on Dec. 19 and 20, 1912. For the first time since its origin, the Association held its meeting without the presence of Pres. George W. York, Vice-Pres. Huffman occupying the chair.

Although there was not so large an attendance as at some of its previous meetings, it made up in enthusiasm what it lacked in numbers. The proceedings of this meeting were taken in shorthand, and will appear in the Illinois State Bee-Keepers' Association's report.

The following officers were elected for 1913: President, Jacob Huffman, Monroe, Wis.; Vice-President, C. F. Kannenberg, Oak Park, Ill.; Secretary-Treasurer, L. C. Dadant, Hamilton, Ill.

The Association voted to join both the National and the Illinois State Associations. F. B. Cavanagh was chosen regular delegate to the National convention, with John Kneser as alternate.

It was decided to hold the 1913 meeting during the Live Stock Show at Chicago.

L. C. DADANT,
Secretary-Treasurer.

Death of Dr. Wm. R. Howard.—We are informed of the death, on Dec. 25, 1912, of the above-named scientist at Fort Worth, Tex. He died while on duty, in his buggy, responding to a call. He was 64 years old.

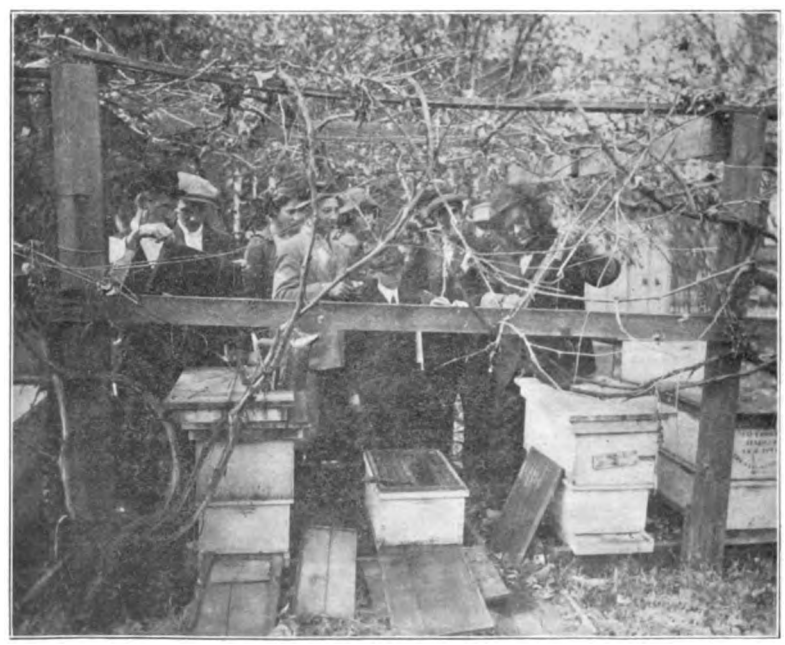
Dr. Howard acquired a name among bee-keepers by his microscopic and bacteriological studies of foul brood, described in a pamphlet of 48 pages, entitled "Foul Brood, its Natural History and Rational Treatment," published in 1894. He recommended the McEvoy treatment.

He was a member of the Texas Academy of Science and of the American Microscopical Society.

Bee-Keeping in Schools.—As an illustration of what could be done by nearly every bee-keeper for the furtherance of education in bee-keeping, we refer the reader to the pictures illustrating what Mr. Coppin, of Wenona, Ill., has done. Mr. Coppin, using the colony of bees which he had previously exhibited at the Illinois State Fair, gave interesting information to the pupils of the Wenona schools. E. F. Nichols, superintendent of the schools, writes as follows:

"When the class in zoology came to the study of bees, presumably one of the most interesting and profitable subjects in the work, it was thought best to get it in as practical way as possible. The teacher who, in this particular school, happens to be the superintendent, went to the distinguished 'bee-man,' Mr. Coppin, and consulted with him as to the best methods for study. After a brief discussion, Mr. Coppin invited the teacher and class to visit him in his apiary.

"The invitation was accepted one bright morning. Mr. Coppin provided the necessary paraphernalia for the young people, in order that they might



TEACHING BEE-KEEPING.

American Bee Journal

AARON COPPIN EXPLAINING THE INTRICACIES OF A BEE-HIVE TO A GROUP OF SCHOOL CHILDREN

go among the bees. He then proceeded to give them a lesson, and explained to them how the bees could be quieted, and, took up in a very systematic way the bees at home; the queen, workers, and drones; the usefulness of each was carefully explained, the comb was exposed, and showed how made and why. The journey of the bee to the flower and return created a great deal of interest. The swarming, or the separation of the colony was worked over until it was well understood. Many other things were presented to the class, and all felt repaid for their journey to the apiary."

Kansas State Meeting.—The annual meeting of the Kansas State Bee-Keepers' Association will be held in the Commercial Club rooms at Topeka Feb. 4 and 5. We earnestly hope all persons interested in bees will be present. The meeting will close with a banquet Wednesday evening.

O. A. KEENE, *Sec.*

Southern California.—The bee-keepers of Southern California report a good meeting at Los Angeles on Dec. 12, 13, and 14, 1912. Mr. M. H. Mendleson, who was present, says that the time was too short for the good program they had.

Organization is the thing to promote your interests. But the organization must be well advertised in order to become universal. We will gladly give this matter a helping hand.

Typographical Errors.—"What taffy are you giving us," asked one of our subscribers concerning an extra cypher in the number of sections of honey harvested from 25 colonies, printed on the front cover of our January number. The error was corrected before the entire edition was printed. Those who received it with the error uncorrected may have a laugh at the printer, as did the readers of the society column of a daily reporting that the doctor "lanced the dancers," instead of "danced the lancers."

Our European subscribers might well accuse us of "American exaggeration." We plead unintentional guilt—"23,000 sections" should read "2,300."

New Jersey Report. — The Annual meeting of the New Jersey branch of the National Bee-Keepers' Association was held Dec. 20, 1912, at New Brunswick in the Entomological Building of the New Jersey Agricultural Experiment Station.

This was the liveliest meeting for a long time. The weather was fine, and there was a large attendance from all parts of the State. Several interesting papers were read, which brought forward some new ideas, and caused useful discussion.

Dr. E. F. Phillips was present and gave a very instructive talk with lantern views, upon treatment of foul brood. The views showed an operator treating a colony, from the first arrangement of the old hive, the new hive, a super cover as a runway, and with smoker and record book until the work was completed and everything cleared away. A live demonstration could have been but little more satisfactory.

Dr. Headlee, the new head of the Agricultural Station, also addressed the meeting along the line of pollination by the bees, and forcasted an in-

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creased demand for bees for this purpose.

Mr. C. H. Root, of Red Bank, was elected President. Mr. E. G. Carr, the present very efficient Secretary, was re-elected. Mr. Carr was also chosen to represent the bee-keepers at the State Board of Agriculture meeting in Trenton Feb. 8, 9. 10, 11, 1913. Mr. Harold Hornor, of Philadelphia, Pa., was elected delegate to the National Bee-Keepers' meeting at Cincinnati. The membership has about doubled since the summer meeting in July.

Profits and Losses.—A carefully made yearly account of profits and losses in the business of bee-keeping is someing which we rarely get. Either there is no such account kept or the careful man who keeps it does not care to give it to the public. A great deal more satisfaction would be secured out of the business side of apiculture if each of us would keep a strict account of all incomes and expenditures.

Year	No. cols. Spring count	No. cols. Fall count	No. sec. comb produced	No. lbs. extracted produced	No. lbs. wax produced	Total sales	Total exp. labor sup. rent. etc.	Cap inv. bees sup. appli Jan. 1	Percet return capital
1902.....		9							
1903.....	8	17	466			58.25	35.60	32.00	71
1904.....	14	24	493			61.62	61.50	77.35	00
1905.....	12	15	24			4.60	24.80	173.75	*11.5
1906.....	7	19	62			7.75	18.65	169.75	*06.4
1907.....	4	12	72			9.00	13.85	179.50	*02.2
1908.....	11	18	694			127.25	25.50	166.35	61
1909.....	16	19	58			12.65	36.40	134.75	*17.6
1910.....	18	22	450			56.25	21.40	158.95	22
1911.....	20	19	816			106.40	23.05	163.75	51
1912.....	15	24	1039			133.87	39.30	149.10	63
10-year average —* loss.	12.3	18.8	417			57.76	30.00	140.53	19.7

It took me several years to learn the lesson not to increase too rapidly, also to be sure that each colony had enough stores at the end of the season to carry them through winter.

The foregoing is a 10-year statement of the apiary of Mr. G. W. Fehleisen, who has already furnished some information in our columns. Studying his report, we find the average income of $27.76, all expenses paid, from an average of 12 colonies, or about $2.25 per colony. This after deducting all expenses and labor. The gross income is about $4.70 per colony. We would like to know how much of the expense is counted as labor. The selling price of the honey is about 14 cents per section.

It would be interesting to have comparative statements of the profits in producing comb and extracted honey under identical circumstances. We hope some of our experimenters will furnish them to us.

"Unlawful Iowa Weeds and Their Extermination."—This is the title of a pamphlet (No. 5) published by the Iowa Agricultural Experiment Station of the Iowa State College of Agriculture. The weeds which land-owners are required by law to exterminate, in Iowa, are the following:

Quack grass, *Agropyron repens.*
Canada thistle, *Circium arvense.*
Cocklebur, *Xanthium canadense.*
Wild mustard, *Brassica arvensis.*
Curled dock, *Rumex crispus.*
Smooth dock, *Rumex altissimus.*
Buckhorn, *Plantago lanceolata.*
Wild parsnip, *Pastinaca sativa.*
Horse nettle, *Solanum carolinense.*
Velvet-weed, *Abutilon theophrasti.*
Burdock, *Arctium lappa.*

In addition to the condemned, the following are ranged among the noxious weeds:

Milkweed, or *asclepias*, morning-glory, wild timothy, squirrel tail or wild barley, foxtail, shoofly, chicory, dodder and wild carrot.

We are glad to see that none of our friends, the honey-producers, are included in the list. One, however, is forgotten which has richly deserved the name of noxious. It is the ragweed, which infests many stubble-fields and roadsides. Its rank-smelling pollen causes hay-fever in one form. The only plant that will destroy it by overshadowing it is sweet clover.

Observing Hives 250 Years Ago.—"After dinner, to Mr. Evelyn's; he being abroad, we walked in his garden, and a lovely, noble ground he hath indeed. Among other rarities, a hive of bees, so as, being hived in glass, you may see the bees making their honey and combs mighty pleasantly."—(*Pepy's Diary, May 12, 1665.*)

Consular Report of Great Britain.—The current (Nov. 29, 1912) wholesale prices in London of Jamaica honey, in nickel-plated screw-cap glasses are: Per dozen 1-pound nominal, $1.70 for one dozen; per dozen 1-pound nominal, $1.64 for three dozen; per dozen 1-pound nominal, $1.58 for six dozen. For extra fine quality, 1-pound nominal, fancy glass jars, the price is $1.88 per dozen. For original casks, the prices are $7.30 to $9.25 per hundredweight. Terms are 28 days net.

While the present retail prices of imported honey are little higher than in 1911, the fact that the domestic production is so limited will undoubtedly very materially affect the wholesale rates.

Names of some London importers of honey are forwarded [and may be obtained from the Bureau of Foreign and Domestic Commerce].

Quebec Provincial Association.—We take pleasure in giving our readers a portrait of Mr. A. O. Comiré, M. D., secretary of the Quebec Bee-Keepers' Association. This Association, organized 4 years ago, is quite flourishing, thanks to the efforts of a few devoted men. They are successfully fighting diseases, and have six inspectors employed. The annual meeting took place Nov. 13, with over 100 members present.

A very significant indication of the

A. O. Comiré, of St. Francois du Lac, Que.

progressiveness of this Association is to be found in the following resolutions passed at this meeting:

"That the Minister of Agriculture be requested to take steps to amend the law in such a manner that it be made illegal to keep bees in hives with fixed combs or immovable frames, because such hives encourage foul brood, and because it is impossible to treat the disease conveniently in them."

"That the Minister of Agriculture be asked to cause the law to be amended so that inspectors may be authorized to destroy at their discretion diseased colonies which the owners refuse or neglect to treat according to their instructions, and that said owners may be indemnified according to the valuation made by the inspector."

"That inspectors who shall be nominated shall be compelled to undergo examination before a committee named by this society."

Mr. Sladen, of Ottawa, gave a lecture

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on "Scientific bee-breeding, improvement of races and italianizing." Mr. Beaulne gave a talk on the fertilization of fruit blossoms by the agency of the bees.

The date of the next meeting is to be decided by the Board of Directors.

Bees Mentioned in Pepy's Diary.—Talking of the country above Quinsborough (Konigsberg, Eastern Prussia, on the Baltic Sea).....Mr. Harrington told us how they do to get so much honey as they send abroad. They make hollow a great fir-tree, leaving only a small slit down straight in one place; and this they close up again, only leave a little hole, and there the bees go in and fill the bodies of those trees as full of wax and honey as they can hold; and the inhabitants at times go and open the slit and take what they please without killing the bees, and so let them live there still and make more. —(*Pepy's Diary, Dec. 11, 1662, page 73, Vol. II.*)

It is interesting to notice that the above, written in England 250 years ago, concerns a country adjoining Russia, and that at the same latitude, 55 degrees north, and a few hundred miles east, are the best honey-producing districts of Russia, as will appear from the following consular report lately (November, 1912) published:

FOREIGN HONEY-PRODUCTION AND TRADE IN RUSSIA.

At the present time there is scarcely a province in Russia in which there do not exist, in one form or another, apicultural societies which provide special courses of study and lectures. In many districts there are specialists who devote their time to the spreading of information concerning rational methods. Much of this activity is due to the zemstvos—especially to those in the provinces of Viatka, Kostroma, Ufa, Kazan, Tula, and to the county zemstvos of Perm and Kolomna (province of Moscow). Unquestionably the most important factor in the growth of apiculture is recognition of the fact that honey is becoming more and more an important article in the world's market. At the beginning of 1912 the Council of Ministers approved an appropriation of $50,000 in the shape of loans to those engaged in apiculture whose honey-yielding crops were poor last year.

The provinces in which apiculture is most flourishing in Russia are Viatka and Perm; then follow Kazan, Kostroma, and Kief. In the first two there can be noted a real advance in apiculture among land-owners and peasants alike, which is due principally to the activity of apicultural societies. The Kungarskoye Society has a well-arranged museum, a model experimental apiary, a mechanical workshop for the construction of hives, and various other appliances. There are two apiarian instructors in the society.

The initiative and example of the Kungarskoye Society has been followed by nearly all the zemstvos of the provinces of Viatka and Perm, which also have instructors in apiculture. American frame hives of the Langstroth-Dadant type are rapidly taking the place of the old log and straw hives The demand for honey has also improved.

Apiculture in the province of Kazan has an industrial character. The same can be said about the province of Kostroma, in some of whose counties nearly all the apiaries are composed wholly of frame hives; the number of colonies in the province reaches 100,000, of which 30 percent are in frame hives. Adjoining the zemstvo apiary, in the city of Kostroma, is a school of apiculture having more than 100 pupils, principally peasants. In the province of Kief, apiculture has greatly advanced. Statistics show 238,000 colonies in the province, but probably there are more. The hives are nearly all of the old type.

The province of Voronezh has in its 12 counties more than 12,000 apiaries, most of which are owned by peasants, and are very well kept, as was shown at the Apicultural Fair held at Voronezh in September, 1912. Of the 4000 persons occupying themselves with apiculture in Moscow province, 90 percent are peasants.

In other provinces of Russia, including also the Polish provinces, apiculture has not advanced to such a pronounced extent, although it can be considered as fairly average, and the zemstvos are working hard to improve its condition.—Consul Gen. John H. Snodgrass, Moscow.

Bee Statistics for Austria.—According to figures compiled by the Bureau of Statistics of the International Institute of Agriculture at Rome, there were in 1910, 1,229,189 colonies of bees in Austria as compared with 996,139 colonies in 1900. This shows a gain of over 233,000 colonies, or about 24 percent—a gain of nearly 5 colonies per thousand inhabitants.

Austria had, in 1910, a population of a little over 28,000,000. There is, therefore, one colony of bees for every 24 inhabitants.

In the same country poultry, in 1910, reached a total of over 35,000,000. Let us for a moment compare the two figures. Figuring chickens at 50 cents each, and colonies of bees at $5.00, both of which figures seem conservative, for this country at least, we have the value of poultry as $18,000,000, while that of bees is $6,000,000, making the value of bees one-third that of poultry in Austria.

Sacbrood.—The above new name has been invented by Dr. G. F. White, of the Department of Agriculture, to describe the brood disease, which is neither American nor European foul brood, and in which the dead larvæ can be removed from the cells without rupturing the skin or body wall. "When thus removed they have the appearance of a closed sac. This character suggests thh name sacbrood."

The name is certainly appropriate. We wish the names of the other two diseases were as appropriate. In many cases these names lead people astray, and one has to be informed of the history of the discoveries to understand the expressions.

This "sacbrood" is said by Mr. White to be infectious. We are sorry to hear it. But if it is the same trouble which has previously been called "pickled brood," it appears to be of a very mild nature.

The circular concerning "sacbrood" is a six-page Bulletin, No. 169, of the Bureau of Entomology, and may be had by sending 5 cents to the Government Printing Office, Washington. Mr. White deserves the thanks of the beekeepers for his untiring efforts.

Program of the National.—The National Bee-Keepers' convention will be held at the Grand Hotel in Cincinnati, Ohio, Wednesday and Thursday, Feb. 12 and 13, 1913.

The meeting will be called to order at 10 a.m., Feb. 12, when a Committee on Credentials will be appointed. The meeting will then adjourn for the filing of delegates credentials.

AFTERNOON SESSION—1 P.M.

1. Appointment of a Committee on Resolutions, a Committee on Constitution, an Auditing Committee, and a Committee on Good of the Order.
2. President's address.
3. Vice-President's report.
4. Secretary's report.
5. Treasurer's report.
6. Directors' reports.
7. Legislative Committee's report.
8. Proposed amendments.

EVENING SESSION—7 P.M

1. Address "Needs of the Western Bee-Keepers"—Wesley Foster, of Boulder, Colo.
2. Discussion.
3. Address, "Why the production of comb honey should be increased"—Ernest Root, of Medina, Ohio.
4. Discussion.

MORNING SESSION—THURSDAY, 8 A.M.

1. Report of the Auditing Committee.
2. Amendments to the Constitution.
3. Incorporation of the National.
4. Election of Officers and Directors.
5. Report of Committees on Uniform Grading Rules—Buyers and Producers.
6. Discussion of Uniform Shipping-Cases.
7. Other business.

AFTERNOON SESSION—1 P.M.

1. Address, "Some recent achievements with suggestions for 1913"—Dr. B. N. Gates, of Amherst, Mass.
2. Discussion.
3. Short talks by the delegates; each delegate will be called on for an address on any topic he sees fit to select.
4. Question-box.

After much correspondence the Grand Hotel, located at the corner of Fourth and Central avenues, has been selected as our headquarters. The hotel will hold about 500 people. The rates for rooms (European plan) are from $1.00 each person up, without bath, and $2.00 up with bath. The convention will be held on the second floor of the hotel. All sessions will be open to the public, but the voting will be done by the delegates.

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PART OF THE BEE-EXHIBIT AT THE PECOS VALLEY FAIR IN NEW MEXICO.

BEE-KEEPING FOR WOMEN

Conducted by MISS EMMA M. WILSON, Marengo, Ill.

Honey Selling and Swarm Catching Made Easy

"Somewhere I have read that people who are badly affected by bee-stings never make a success at keeping bees. I do not see how any one could suffer more than I do in that way, and yet I have done very well in the bee-business, although I have never carried it on properly. It has been a side-line with me, as I have never had help or been able to handle the hives, to separate them, and do lots of things I should have done; partly because I had not the strength, as I am often ill, and partly because I have been busy with other work.

"I had 31 colonies at one time, but from some cause they fell to a much lower number; yet I have had a nice bit of spending money from my bees. Four years ago I had about 20 colonies, and sold over $60 worth of honey, besides giving away some and using some at home.

"I am more fortunate than some, in that I sell direct to my friends. I have been in the habit of driving to the hop fields and selling to the pickers, and taking a few sections to different people as they are wanted. They prefer it to what they buy in stores; they say the store honey is tasteless and thin. I get 20 cents, the same price that is asked by merchants.

"As stings disagree with me, I made a rig in which I can handle any kind of bees. You would probably be surprised if you saw me in my rig, but if you knew the kind of places where I am often obliged to go after swarms, you would not wonder that I made it.

"I had overalls made very large with straps over the shoulders, and with no opening except at the waist and the bottom of each leg, and these were closed with a draw-string. I could slip these on quickly when in a hurry, and could climb well. No danger of catching a dress on limbs of trees, and if a cluster fell on me, as they sometimes would, they could not find any place to crawl in, and generally they would all go back to the ones still on the limb.

"For face protection I made a wire head-rig with a piece of window-screening. This screening I bent over a crock, to get the right shape. Then I made a hoop from steel like that in a hoop-skirt, and sewed it near the bottom. To the bottom of this wire was sewed a cloth curtain that reached below my arm pits, and a draw-string tied it down close. I set in large sleeves, and with gloves I could handle a vicious swarm.

"Even if there was not much profit in it, I like to work with bees, and enjoy watching them take possession of a new home. As I am not very young (61), it has not been easy work for me to get a swarm from a high place alone.

"Often when reading the Bee Journal I think how much I would enjoy a chat with the different ones of the family, for so they seem to me. Perhaps there may be something in this letter that will be of benefit to some of my friends. We often think that what we do is very simple and not worth talking about, while another person would be pleased to know about it. I wish I could be with some good bee-keeper and see him or her handle bees. What I know has been learned from experience and by the help of the journal."

(MRS.) GERTRUDE L. GOODWIN.
Roy, Wash.

Your letter is very interesting. You have been able to get such good prices for your honey, why not devote more time to your bees, and less to other work?

Your bee-dress is a safe one, and I can imagine that you can tackle any cross colony, and feel quite serene. But why do all of that useless climbing? Why not clip your queens' wings? Then when those bees swarm, look for the queen in front of the entrance, pick her up and cage her, and the bees will come back when they get ready without any interference from you. Then you can let the queen run in with the swarm. Doesn't that sound lots easier than climbing high trees after swarms on a very hot day? Do you say you cannot clip a queen? No trick at all after you have clipped a few. Just try clipping a few drones' wings first if you feel nervous about it.

Honey Confections

It is pleasant to note that the popular magazines are beginning to recognize the value of honey. Two recipes that here follow are taken from "Good Housekeeping," which prefaces them by saying:

"A pleasing addition to confectionery is honey, and it can be used to advantage in cake and pastry also. Because of the predominance of sugar in honey, less of the other sweetening substances should be used. A little salt improves all candy in which much salted butter is not used.

"PINEAPPLE MARSHMALLOWS.—Heat two cupfuls of sugar, half a cupful of water, and half a cupful of honey over a slow fire. Then boil rapidly until it threads, and add 18 marshmallows, cut in pieces, and the beaten whites of two eggs. Beat until the mixture is creamy, then add one cupful of chopped candied pineapple. When quite firm pour into an oiled pan and cut into squares. Roll in cornstarch and powdered sugar.

"HONEY PUFFS.—Boil three cupfuls of sugar and one cupful of cream; when it will almost thread, add one-fourth cupful of honey. When it reaches the soft, ball stage, take from the fire and beat the stiffly beaten white of an egg into it. Beat one minute and add half a cupful each of finely chopped nut meats and chopped candied pineapple. Beat until firm and creamy, and shape into balls between the fingers with a wet napkin, then cool. A speck of salt adds to the flavor."

"HONEY GINGERBREAD.—Four cupfuls

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of flour, two heaping teaspoonfuls of powdered ginger, half a cupful of Sultana raisins, half a cupful of preserved cherries, a quarter of a cupful of chopped citron peel, half a cupful of butter, three-quarters of a cupful of honey, two eggs, a quarter of a teaspoonful of salt, and a quarter of a cupful of milk. Sift the flour, salt, baking powder and ginger into a basin, add the raisins, the peel, and cherries cut in halves. Melt the butter, honey and milk together in a saucepan, then cool and add to the flour with the eggs well beaten. Mix, turn into a buttered-and-floured cake-tin, and bake."—*Ladies' Home Journal.*

Plan of Requeening—Forming a Partnership

I would like to suggest to "Subscriber," page 343, a plan for requeening that is absolutely safe, and by which there is no loss of brood or stoppage of brood-rearing. The plan is not original with me, though I do not now remember where I read it.

When your queen-cells—however obtained—are nearly ready to hatch, form nuclei with bees obtained wherever you can best spare them. I use three or four shallow extracting frames, making the boxes for them myself from old dry-goods boxes, and I like rather strong nuclei.

In these allow your young queens to hatch and mate. But at the time that you give these nearly-ready-to-hatch, cells to nuclei, go to the hives which you wish to requeen, raise half or more of the brood, after the Alexander plan, *i. e.*, place it in a hive-body above the parent colony, with an excluder between, making sure that the queen and at least one frame of brood are in the lower hive. By the time your young queens in the nuclei are laying, this brood in the upper story is all sealed. Then shake all the bees from it in front of the entrance to the lower hive-body, exchanging the excluder for wire screen. A young queen can now be safely dropped into the upper hive-body, and by the time a sufficient body-guard of young bees has hatched to protect her, the old queen can be hunted out and removed from below. If you want to be very careful, replace the wire screen with the excluder for a few days. When the young queen has considerable brood, the excluder can be removed entirely, and there is no danger that she will not be accepted. It might be well to examine the lower hive for queen-cells.

Some advocate allowing the cells to hatch in this upper brood-chamber, and to mate from a rear entrance, but there are more young queens lost that way, though it is less trouble and expense in bees than to form nuclei, and it would be necessary to rear the brood in the hives to be requeened sooner. Otherwise if the excluders were left on so the bees from below could care for the brood, the young queen might be destroyed. Or if the wire screen were put in its place a good deal of unsealed brood would be lost.

Now, Miss Wilson, I wish to put to you a hypothetical question: Suppose an elderly lady, who has had years of experience in bee-keeping, but is hardly equal to the necessary work, wishes to take into partnership a younger woman to help with this work. We will suppose the home, with only these two women, 100 hives and fixtures, 20 colonies going into winter quarters, and to be increased indefinitely, also one of the best bee-locations, with a chance for a dozen or more out-apiaries in extra-good locations, and then the attendant hired help. Now, what kind of a bargain should these two women make?

It is not a case of renting the bees—half the honey and half the increase—but a partnership in which the older woman is, for the present, manager, and will work to the extent of her ability.

Now, please hold out the lamp of your experience and knowledge to illumine our bewilderment.

DELIGHT.

As to the right adjustment between Mrs. A, who owns the bees, and Miss B, who is to be the partner, there are so many different conditions and contingencies that it is hard to make any very intelligent suggestion. If Miss B knows nothing about the business she might be glad to spend the season with no compensation aside from what she could learn. If she were a very competent bee-keeper, and did nearly all work, she might be entitled to the greater part of the proceeds.

As one way to proceed, let the time spent by Miss B be reckoned at a fair price, and let that be her pay. That would be entirely fair, but there would be no partnership in the case. To become a partner, Miss B must in some way depend for recompense upon the success of the business. Suppose, then, after reckoning as before what will be a fair remuneration for Miss B, we find what part of an *average* crop that will be, whether it be 25 percent, 50 percent, or more. For the sake of illustration, let us suppose it be 50 percent. Then let 50 percent of the crop be hers, whether the season be good or bad. In a year when the crop is twice as much as in an average year, she will get double pay. Thus it will be seen that her reward will depend upon the success of the season, making her truly a partner.

Not unlikely you will ask, "What is an average crop?" Please don't look in this direction for any light upon that question. The average for one locality is not the same as for another locality; indeed, the average for two bee-keepers in the same locality may be different. It can be gotten by footing up the crops of a number of successive years in the past and striking an average.

It is entirely possible that this solution of the problem may not at all fit the case you have in mind, and it must be left for you to evolve something that will entirely meet all the conditions.

Two Winter-Weather Recipes

In stormy, winter weather the lips are often inclined to crack, and the sensation is frequently very painful, especially on a frosty day with a cold wind blowing keenly. If, when this trouble arises, the lips are rubbed over with a salve of honey and glycerine mixed in equal proportions, it will restore them to a normal condition. As a preventive, a little rubbed on will keep the lips moist and hinder cracking.—D. M. MCDONALD, in *British Bee Journal.*

For chapped lips, dissolve beeswax in a small quantity of sweet oil by heating it carefully. Apply this salve two or three times a day, and avoid wetting the lips as much as possible.

To soften and whiten the hands try the following: Honey, one ounce; lemon juice, one ounce; eau de cologne, one ounce. Apply after bathing. —*Woman's National Weekly.*

HONEY MUFFINS.—Sift two cupfuls of flour with two level teaspoonfuls of baking powder and a quarter of a teaspoonful of salt. Rub in two level tablespoonfuls of butter, two eggs well beaten, five tablespoonfuls of milk, and a third of a cupful of honey. Mix and pour into well-greased muffin tins, filling half full; bake in a moderate oven. These may be covered with fruit pudding sauce or whipped cream, and served for cottage puddings.—*Chicago Record-Herald.*

FAR WESTERN BEE-KEEPING

Conducted by WESLEY FOSTER, Boulder, Colo.

Wrap Honey Neatly

During the winter days why not put the honey-house in order? Mr. Good-bee-keeper has his packing table covered with a large sheet of galvanized iron. At one end of the table is a roll of wrapping paper and a spool of twine. Comb honey or pails of extracted, can be quickly and neatly wrapped. In fact, the packages he wraps for his customers are as neat as those put out by any mercantile house.

Consumers, in these "high cost of living" days, like to buy of the producer direct. Such dealing will increase if every producer creates a favorable impression by tying up packages with neatness.

The Leaf Roller

The leaf roller, the spraying for which caused such a loss of bees in Fremont Co., Colo., is to be controlled by spraying the trees early with a soluble oil emulsion. This emulsion will be applied before the eggs begin to hatch. Since the eggs hatch just as

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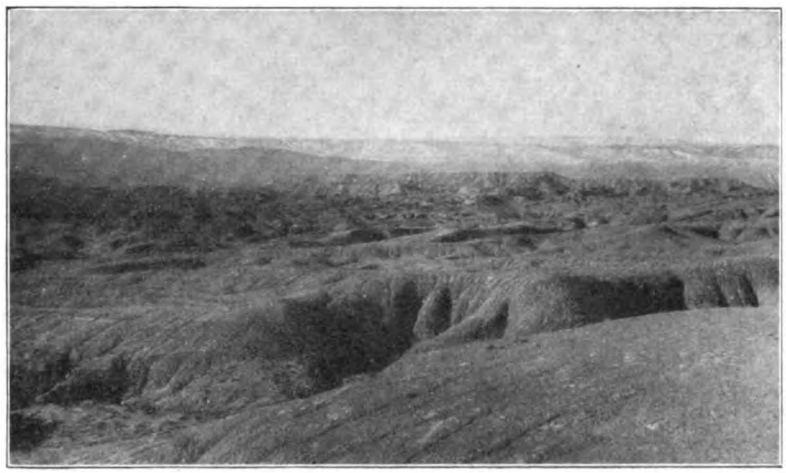


SOME OF THE "BAD LANDS" OF WESTERN COLORADO; NOTHING BUT CLAY. GRASS WILL NOT GROW. BUT A MILE OR SO FROM THIS IS SOME OF THE BEST LAND IN THE STATE

the leaves begin to open, and before the buds have opened, no bees will be killed. The Agricultural College, in its experiments, found that by thoroughly spraying with the soluble oil, 95 percent of the eggs were killed or could not hatch.

A Colony of Bees

A colony of bees is a collective organization of definite requirements, responding to the beneficial treatment and suffering from lack of attention. Its main needs are well understood, but some important ones of less prominence are neglected. The weather conditions affect the life of a colony very much. Early in the season some hives are well supplied with honey and pollen stores while others may be short. Some localities are destitute of early pollen from natural sources, and unless stored pollen is available, little brood-rearing will result. Many a bee-owner has wondered why his colonies do not build up early, when the queens seem to be young and vigorous. Honey may be supplied in sufficient quantities, but the lack of pollen in the hives and in the fields is very often the cause of this trouble.

Paste for Labels

A suitable paste for paper labels on tin cans is prepared from silicate of soda ½ ounce, cornstarch one ounce, and cold water 1½ pints.

Add the starch and silicate of soda to the water and stir until the whole is smooth, then place the vessel in another one containing a little water and heat until the starch is gelatinized. This paste should be made often, as it soon loses its sticking properties. This recipe came from Farmers' Bulletin No. 516, on "Maple Syrup and Sugar Production." The value of maple sugar and syrup in the United States for 1910 is placed above $5,000,000. New York, Vermont, and Ohio each produced more than $1,000,000 worth. Taking the whole country, the honey industry is far larger.

[We make excellent paste for labels for tin with ordinary wheat flour and boiling water. The flour is thoroughly stirred to avoid grumes or lumps. The mixture is kept hot and stirred until of nearly sufficient consistency. Bear in mind that it thickens in cooling. If to be kept for a few days, add a little powdered alum.—EDITOR.]

Moving Bees to Colorado

What do you know about the Salida country for bees, honey, and fruit? A friend of mine and myself are talking of going West.

Is there any trouble about shipping bees into Colorado from other States?

What is the value of bees in Colorado?

New Canton, Ill. W. H. HYDE.

The country around Salida is above 7000 feet altitude, and for this reason is not desirable for bees or fruit. Some bees are kept there, but the territory is limited. It would be advisable for you to make as extensive a trip as possible before deciding on any place.

Our law on bee-diseases does not forbid the shipping in of bees, but in all cases of shipment, inspection will be done at the time of unloading, or very soon after. In districts where foul brood is prevalent there is not much danger, as we still have considerable disease to spread the contagion. But in the parts of the State where no foul brood exists a greater degree of care would be exercised. Should European foul brood be introduced in a shipment, it would be far better to destroy the whole shipment than to let it get started. European foul brood, so far, is unknown in Colorado. Our law admits of the destruction of material at the discretion of the inspector.

Bees can be purchased for $2.50 to $6.00, according to the hives they are in. Colonies in dovetailed hives, including one super, sell from $4.50 to $5.00.

If you have European foul brood in your county, you had better not ship bees here, as it would not be just to the bee-men of this State, and it would cause trouble. The same thing applies to American foul brood, of which we still have some except in a few counties of the State.

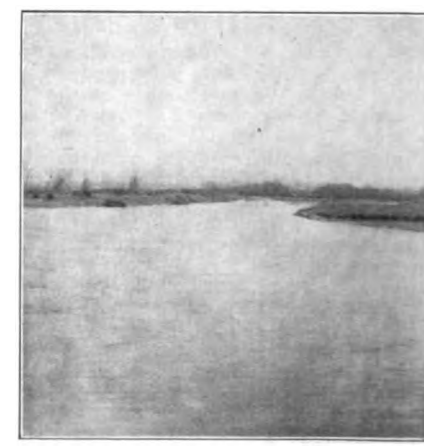
You will be welcome among us, as we still need more bee-men in some localities, but you would be more welcome to buy an outfit that is already here.

WATER WHEEL OF R. W. ENSLEY AT READ COLO. HE OWNS HIS OWN WHEELS AND DITCHES

Sweet Clover

Within range of nearly every Colorado apiary are many acres of waste land which should be producing nectar for the bees, by sowing sweet clover. The time has passed when sweet clover might be called a weed. The wide, sandy bottom lands of rivers make an especially favorable place for it to thrive.

Mr. Frank Coverdale tells in Gleanings in Bee Culture that sweet clover is worth $4.00 an acre for honey alone. Why cannot you make $100 by sowing 25 acres to sweet clover within range of your bees?



THE GUNNISON RIVER IN COLORADO

Hominy and Honey

The newpapers state that Joaquin Miller, the virile western poet, who is now past four score years, is living wholly on a diet of hominy and honey. Furthermore, he is an apostle of the new diet, every visitor being offered a large handful of hominy, dripping with

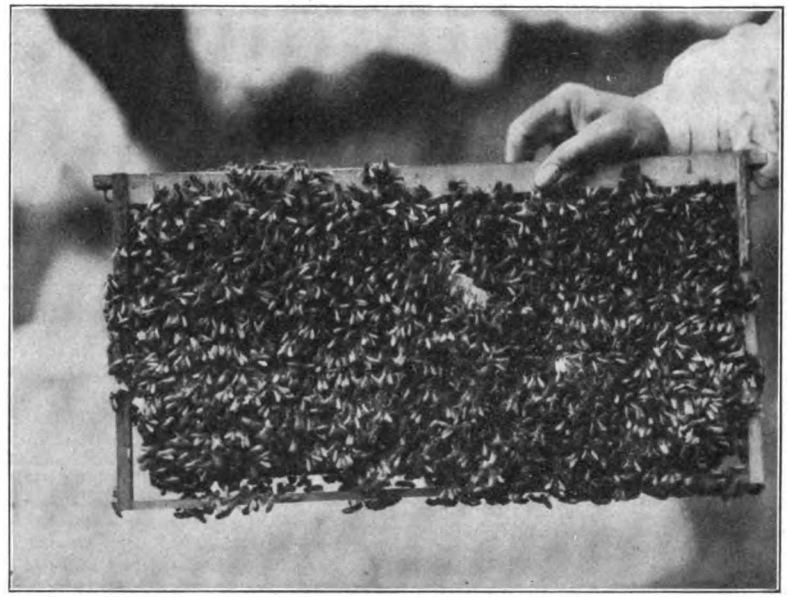
American Bee Journal

honey drawn from an earthen jar. Let the good work go on, but however poetic, I do not care to eat hominy and honey with my fingers.

Fall Feeding

A bee-keeper who has an apiary located in a district where amber, inferior fall honey is secured, asked me what to do to ensure better wintering. His honey is not very suitable for wintering bees on account of early granulation. I suggested that he extract the honey from the brood-nest and feed sugar syrup. By blending the amber with white honey, he can dispose of it in the home market for 9 cents or more a pound.

The time to do this extracting is at the close of the harvest. One comb of honey may be left at the side of the hive for the bees' feed until the extracting is done and the feeding begun, when this comb may be removed. This feeding, if the weather is warm and the nights not too cold, will stimulate breeding, and the hives will be filled with young bees for the winter.



A Nice Comb of Bees.—Photographed by Wilmot R. Evans.

Bee-Keeping In Dixie

Conducted by J. J. Wilder, Cordele, Ga.

The "Home of the Honey-Bee" at Cordele, Ga.

The building and grounds represented by this photograph are the headquarters for my bee-business, and the apiary was the first one I established. At first it consisted of but one colony of bees in a badly decayed box-hive. At present it consists of 150 colonies of Caucasian bees. This is where I made the increase for my Georgia bee-business, and where thousands of queens were reared and mated.

The building is two stories high, and has nine separate apartments with a driveway in the center. It has nine openings or doors from which loading and unloading can be done. Each room is of great importance to the business. I feel that this is my "masterpiece."

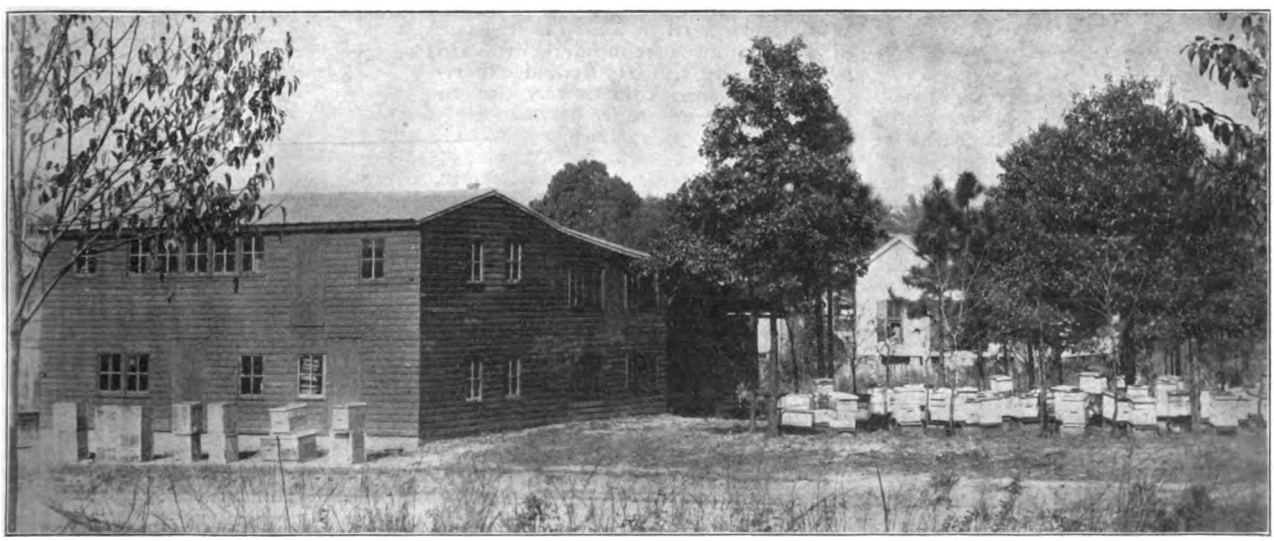
The top story on the front side is my work-shop, and my work-bench is at the cluster of windows shown at the right end, which allows plenty of light and fresh air. This is the largest room or hall in the building. Here I keep my supplies in readiness for use. I generally call this my hall, because many interesting bee-keepers' conventions have been held in it.

Apiary Work for February

Usually we have considerable warm or sunny weather during this month, and we should take our first "peep" at the bees since we put them away for winter.

Pollen is coming in and the queens should be very active, with considerable brood in the nest. This is the starting point for every colony, and the starting point for apiary work. Therefore, it is very important to make investigation of every colony, and supply its needs. Queenless ones should be united at once with other weak colonies. Those short of honey can be supplied from other colonies which can spare it, by exchanging an empty comb for a comb of honey.

The brood-nest should not be disturbed much at this time except to en-



"The Home of the Honey-Bees" at Cordele, Ga.

American Bee Journal

large it, and only when the colony is crowded with stores.

In cases where the bees were not properly prepared for winter, it may be neccessary to feed some colonies, such colonies should be given a feeder placed in the super on top of the brood-frames.

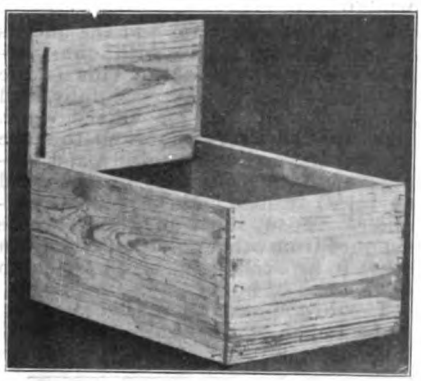
I have never found it necessary to feed for the sole purpose of stimulating brood-rearing, as in most locations there is plenty of pollen and enough early nectar for this purpose. Besides it would incite swarming at too early a period.

I do not advocate feeding bees any way, and would never do it if it were not for utilizing some inferior honey which I do not care to put on the market.

Hive Making

It is customary with some bee-keepers to make their own bee-supplies, especially the exterior parts, such as bottom-boards, hive bodies, supers and covers. It is a very good practice where a bee-keeper happens to be a good mechanic, with plenty of tools and time, and good soft lumber to work, such as cypress or white pine. Yellow pine is not very good for this purpose, as it is too hard and warps, and splits too much.

As this is the time of year when such work can best be done, we bring the matter up and produce a photograph illustrating how the bodies can be cut



THE RIGHT WAY TO NAIL HIVE-BODIES.

out and set up with accuracy and durability. The ends are beveled or rabbeted by machinery or by hand with a rabbet plane on three edges; the top edge is to receive a regular tin rabbet, such as those that are sent out with regular dovetailed hives, which makes by far the best frame rest. The rabbet should be ⅜ of an inch deep all around and as wide as the material is thick, so when nailed up there would be no projections. For the supers the rabbet should be but ½ inch wide on the top edges, so the shallow frames may rest on it, and the same for comb honey supers, as no tin rabbets are used with supers. The inside dimensions for the ends should be 12¼ inches. To get the outside dimension add twice the thickness of the material. The sides are cut off square 18¾ inches long. The material should be gotten out or bought dressed all around, and about thirteen-sixteenths of an inch thick, which is now the standard thickness, and 9¼ inches deep for hive bodies, 5¾ for shallow extracting supers or for supers for tall sections, and 4¾ inches wide for low or square sections. Short or narrow blocks may be nailed on the sides and ends for grip. The manner of nailing up is well illustrated by the cut. Nail from both ways, using as many nails as necessary for a good, durable body; 8 d flat-headed cement-coated nails are best.

A Bee-Producer

Dear reader, I want you to turn back with me to Mr. J. K. Isbell's article on bee-production in our department, page 367 of the December number, read and re-read it until we have his method of bee-production well fixed in our minds so we can take it up step by step just as he outlines and carries it out.

Now is the time to take the first step in this management. It is needless for me to state what the results will be if all our colonies are boiling over with bees at the beginning of the first honey-flow, and this will be the case if we carry out his plan, which is simple. Large crops of honey will be harvested by every one who will do it. Besides, a large amount of increase will be made.

I have traveled extensively over Dixie, visiting hundreds of our bee-keepers, and I find that there are but two methods of production employed. One is the "let alone" plan and the other is Isbell's, or a similar one. The former is carried out more generally, and can we wonder at dissatisfaction? No, indeed.

Bees will never populate their hives properly without aid. It has been pronounced folly by some of our promoters to "pull back" great colonies in order to build up weaker ones, but it is logic to do it if it is done in time, when all colonies can be built up to something like uniform strength under which our greatest crop of honey is gathered.

I had the pleasure of visiting Mr. Isbell during the honey-flow, and saw his bees storing honey under uniform strength. No weak ones, and none ahead of the others, but all at work together. It was magic.

Mr. Isbell is the most wide-awake and practical bee-keeper I ever had the pleasure to meet. He has made a great success with but a small amount of capital, and we expect to hear more from him on bee-culture from now on.

CANADIAN BEEDOM

Conducted by J. L. BYER, Mt. Joy, Ontario.

Effect of Size of Hive on Spring Brood-Rearing

P. C. Chadwick, writing in Gleanings in Bee Culture in defense of using smaller entrances in hives than is advocated by many bee-keepers, incidentally touches upon the size of hives and their relative merits for brood-rearing in the spring. He says, "Here is also the secret of an 8-frame hive. Warmth is more easily preserved, and, in consequence, breeding is more rapid, thus filling the hive much sooner." While there must be a *limit* to the size of a hive for the economics of "bee house-keeping," in my limited experience it has been conclusively proven to me that the difference between a 10-frame and an 8-frame hive, the two sizes, friend C., is comparing, is not enough to allow the effect of heat on brood-rearing to be taken into consideration. By force of circumstances I have almost all sizes of hives in common use, from the 8-frame Langstroth to the 10 and 12 frame Jumbo, and every spring, *without exception*, the bees in the 8-frame hives are the last to be ready for the supers.

While, as I have intimated, there must be a limit somewhere on the size of a hive that the bees can use and not suffer in conservation of heat; just what that limit is I am not prepared to say, but it is a fact, in my case at least, that the colonies in the large hives are always ready for the supers first. The only explanation I can give is that the colonies with the large brood-nests always go into winter quarters with much larger clusters than the smaller ones. Given a large force of well wintered bees in the spring, it is surprising how they manage to overcome all obstacles in the way of cold, and proceed to build their brood up rapidly.

"Locality" can hardly help to explain the difference between Mr. Chadwick's experience and my own; for I would naturally expect less cool weather in California than in Ontario, at the time brood-rearing is going on at its most rapid pace.

Suggestions on Winter Work

"What to Do Each Month," is the heading of a new department in the Bee-Keepers' Review, said department to be conducted principally for the benefit of bee-keepers. Here in Ontario, during the months of January and February, the bee-keepers do about the same thing as their bees—practically nothing, in so far as real work in the apiary is concerned.

During February, if mild weather should prevail to any extent, cellar-winterers should look after their cellars more carefully than earlier in the season, provided, of course, their cellars are not self-regulating enough, so as not to need attention during any part of the winter. Mr. Sibbald, who used to winter hundreds of colonies in the cellar, has more than once not seen his bees from the time they were placed into the cellar until he took

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MR. BYER'S "LOVERING YARD."

them out again in April, and he always wintered successfully.

At the present time I have 250 colonies some 200 miles from my home, all wintering in three caves side by side, and nothing will be done in the way of ventilation from the time they were put in until they come out in the spring. While I cannot say how they will come out, I shall be well satisfied if they winter as well as they did for the past two seasons, when practically every colony came out in perfect condition. Of course, I am well aware that the majority of winter repositories are not adapted to a let-alone plan like that, and in most cases if a man is near his bees, he can help matters along by judiciously giving fresh air at night, during the last six weeks of the bees' confinement.

As to outdoor wintering, here in our locality, I seldom trouble myself even if snow does pile up around the hives in January and February—indeed, if the weather is *real* cold, the more snow the better. On rare occasions we get a day in February when our bees can fly, and then, of course, I like to have the entrances clear if possible.

To beginners I would say, do not disturb the bees in the least by lifting covers, packing, etc., at this time of the year, as you cannot do the bees any good, and may do them a lot of harm.

An Interesting Picture

A spendid picture that on pages 18 and 19 of the January American Bee Journal. Quite a number of the men shown there have at different times written to me, and while I have met but few if any of them face to face, a chance of looking at pictures is really the next best thing to having a hand shake. Not a bad looking bunch, either—really, they compare pretty well with an "Ontario crowd."

While on the subject of pictures, I might add that the one on page 13, entitled a "Michigan girl," certainly shows "nerve," as Mr. Miller says. But what does Miss Wilson mean when she says the proximity of the *man* may have something to do with the bravery displayed? While we know the dear creatures are "confiding," surely no woman could expect a man standing so *far away* as the one in the picture, to keep away cross bees. No, I maintain that the "Michigan girl" is entitled to all the credit, for if the man was duly interested in her welfare, he would be close enough to "swat the bee" should one be disposed to sting her.

Tribute to Paul Mickwitz

It is a long time since the death notice of any bee-keeping friend came so unexpectedly and gave me such a shock as that of friend Mickwitz, in the January American Bee Journal. While he was with us in our home but a few days, in some way he seemed at once to gain the affections of every member of our family, and we have often spoken of his visit, in the family circle. Since he went back to Finland we have had more or less correspondence, and his letters were always a pleasure to read. We mourn for him as a near friend, and our most sincere sympathy is extended to the bereaved family.

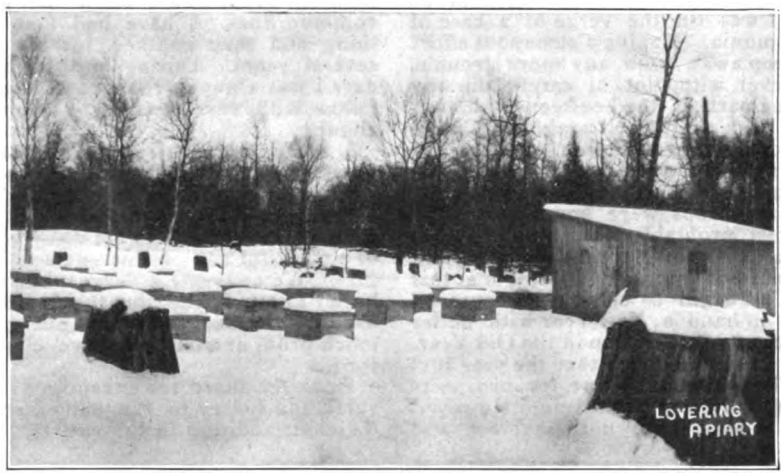
The Weather—Prospects

The winter here in Ontario, to date (Jan. 11), has been warmer than the average, and much warmer than last year. Only once (Jan. 9) has it been real cold, that day being the first that zero was reached. For a few hours it was 15 degrees below, but it gradually moderated, and the next day it was 25 degrees warmer. Of course, the winter is "young" yet, and we may get enough cold weather before March. Judging by outward conditions the bees appear to be wintering nicely, and barring unforeseen developments, I look for fair wintering in general, wherever bees were properly fed in the fall.

Mice—First Trials at Photography

Some time ago I mentioned the necessity of being on the lookout for mice that are apt to bother bees wintered on the summer stands. In our own case this matter is generally looked after pretty well, as sad experience has taught us that one or two "deer mice" can do a lot of harm during the winter season. When leaving the Lovering yard last fall (100 miles from home), a careful look failed to show the signs of any mice, but as a precaution, several traps were placed under the covers of the packing-cases. During the last week in January, the friend on whose place the bees are, wrote me that the "deer" or "wood" mice had come to the apiary in large numbers during the past few days. As there were single fares on the railroads, I decided to take a run up there and have a look for myself, and while I found conditions not as bad as I expected, still quite a few mice were in the traps. I placed oatmeal and strychnine in shallow boxes on top of the packing, and I think all mice troubles will be settled for the present.

As I had just bought a camera, I took



"ASLEEP"—ANOTHER VIEW OF MR. BYER'S APIARY.
Mr. Byer tells us a deer was shot in the middle of the apiary last fall.

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it with me, and snapped several views of the yard. As I had never had my hand on a camera before, and was as "green as a cucumber" on all matters pertaining to photography, I was agreeably surprised to find that all films developed fairly well, although in the process of development one film curled up, and it will be noticed the fluid streaked the negative in the picture entitled, "Asleep." Never mind, better luck next time, and may be with perseverance I will yet be able to take pictures worth looking at.

SOUTHERN BEEDOM

Conducted by LOUIS H. SCHOLL, New Braunfels, Tex.

This Department Editor's Holidays

During that time of the old year when "all the world rejoices and makes merry," this poor scribe was confined to his bed with a cold to begin with, followed with a case of that which is spelled "m-u-m-p-s" (something that he had escaped from as a boy). On top of this a severe case of "grippe" got a grip on me, or I got a grip on the "grippe," and to still make matters worse, our family physician told us that I was on the verge of a case of pneumonia. Making a strenuous effort to keep away from any more trouble, however, with a lot of careful nursing on the part of the bee-keeper's better-half, I am nearly well again and able to do some more scribbling.

I rejoiced during the holidays, although ill. If the Old Year was a good one, and crops were bountiful and the harvest profitable, we can not help but rejoice. If this were not the case, and we had suffered hardships, it is at this time we begin to cheer up because we have at hand a New Year with better promises in store than in the Old Year. And it is to be hoped that the year 1913 will be a bountiful one, for prospects are already very promising. However, it is a long time until harvest, and many a change may take place to make the outcome different from our expectations, yet we hope for the best.

Honey and Good Health

Speaking about my recent illness, it seems to me that it does not matter how well we care for ourselves and our bodies in the selection of foods, and the way we live regarding the contracting of diseases, often the most common ones. I have had first one thing and then another for the last several years. During my boyhood days I was always a robust and healthy fellow, with very few ills to complain about.

I bring this subject up because a number of persons have put great stress on using honey as a health food and a preventive of diseases. I have been a strong advocate, for many years, of a plentiful use of this sweet of Nature. We consume a large amount of honey in our family; but the judicious use of it in our food has not given much proof of what we have claimed for it.

However, there are exceptions to all rules, and honey in the daily diet is a delicious addition to the variety.

CONTRIBUTED ARTICLES

European Foul Brood

BY L. HARRIS.

Seeing in your November issue of the American Bee Journal reference was made regarding the odor of European foul brood, I cannot resist the temptation to chip in when I see an old acquaintance called into question.

I have kept bees for more than 40 years, and my first acquaintance with foul brood was made over 30 years ago, when I kept bees in England, and the greater part of my experience was in fighting European foul brood.

I have the highest respect and admiration for Dr. Phillips, in the work he is doing in tryihg to stamp out this disease, but when he states that European foul brood has little or no odor, I entirely disagree with him. I have handled scores of hives infected with foul brood, and I do not remember ever having dealt with a case that did not have the offensive odor "in a more or less degree," according to the time the colony had been diseased. Often when in an advanced stage it was exceedingly offensive, almost unbearable. It is often compared to the smell of a glue-pot. I say the poorest quality of glue is quite fragrant in comparison with an advanced case of European foul brood. It can often be smelled several yards away from the infected hive, and if one gets close down to the entrance, and can exercise his olfactory powers, it can be detected even if there are only a few cells diseased.

During the last three years I have been acting for the Government of the Province of British Columbia as Foul Brood Inspector, and I have discovered a few cases of foul brood. The first case had been imported "directly" from eastern Canada by a settler. I was requested to examine these bees, and I immediately recognized in it my old acquaintance, *Bacillus pluton*, alias *Bacillus alvei*, I suppose I ought to say. There was no mistaking the odor; furthermore, there was the slight ropiness characteristic of European foul brood.

The next case was different. The outward appearance was very much the same as the European type, except that the diseased cells presented a greasy appearance. I was rather puzzled because any odor was imperceptible; it was the first case I had ever met which was not accompanied by the offensive smell.

It had the other characteristic always found in foul brood, the ropiness in a very marked degree. When the testing stick was applied the decayed mass would invariably stretch out, from one inch to an inch and a half before breaking.

The diseased larvæ which were not actually dried down were in the stringy condition, there was not the combination of different forms of diseased larvæ in the cells in this type of foul brood that we have seen in the European type, and we now know that this was the case of American foul brood, or Bacillus larvæ.

The European type is nearly always evidenced by different forms of diseased larvæ, one cell may contain a dead larva which is almost black and dried, retaining something of its original form, and being loose in the cell, can be readily shaken out. We have seen many of these dried-up larvæ outside the hive, having been carried out by the bees (black brood). Another cell will contain a dead larva which has turned brown or grey in color, and is of a soft, gluey substance, and if we attempt to remove it, will pull out in strings more or less. These are the cells which give off the offensive odor; another larva is of a pap-like or jelly-like appearance, and is encased in an extremely thin and tough skin, pickled brood, yet another may contain a hard cement-like substance adhering to the bottom-side of the cell, which is absolutely impossible to remove without destroying the cell (pickled brood, dried).

In another cell will be found dried scales, usually at the base of the cell; these have the appearance of little pieces of dried skin or scurf, and can be removed with the point of the needle. This is European foul brood in its most dangerous stages, and is easily carried from one colony to an-

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other in different ways, perhaps by the bees themselves. or may be by the bee-keeper.

Vernon, B. C.

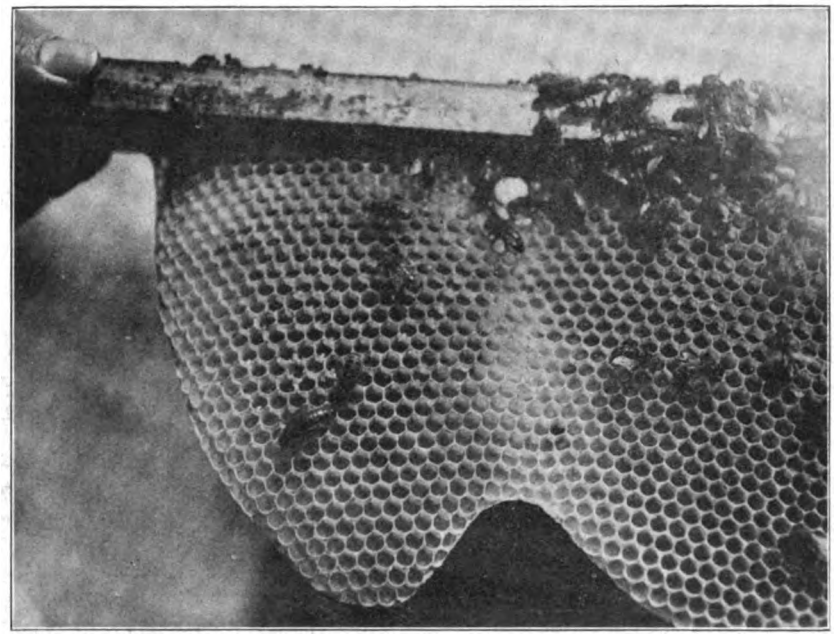
Excellent Portraits of a Laying Queen

BY JNO. A. DOUGLASS.

Appreciating the fact that the Bee Journal is desirous of collecting interesting photographs on the subject of bees, I am sending the enclosed, showing Mr. Frohliger, of Berkeley, Calif., demonstrating his colony of Italian bees to a newspaper reporter, and to some of the employees of the largest department store in San Francisco, "The Emporium."

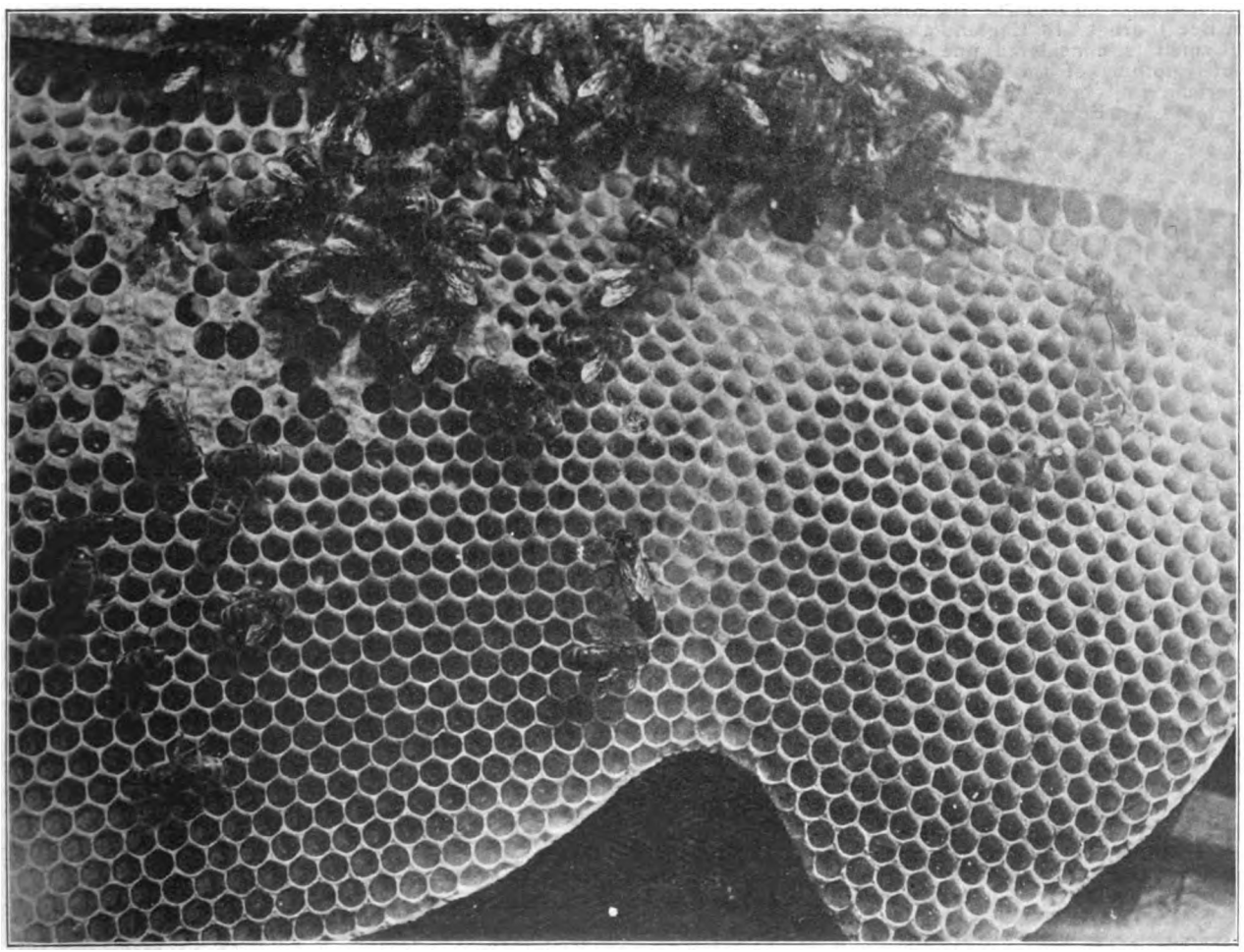
It took Mr. Frohliger but a few minutes to persuade the gentlemen that his bees were stingless (?), as you will see in the picture they have succumbed to his arguments by accepting a handful. During his display of a week, in the grocery department, he kept a 10-frame standard hive on the roof for renewing his exhibition. This department store is in the center of San Francisco, and it is interesting to state that the bees stored and capped considerable honey during their sojourn.

The other pictures, No. 1 and 2, show a leather-colored Italian queen wandering over the comb without any trace of excitement, while pursuing her vocation. Near the top of picture No. 3 she is seen with her body in a cell, depositing an egg, with her retinue of bees surrounding her.



No. 1.—Notice the Queen, Presumably Undisturbed by the Picture-Taker.

I am a back-lot bee-keeper, and have 7 flourishing colonies in San Francisco. I enjoy the work, and find my health much benefitted in the pleasure of this pursuit. My one aim is to have an api-



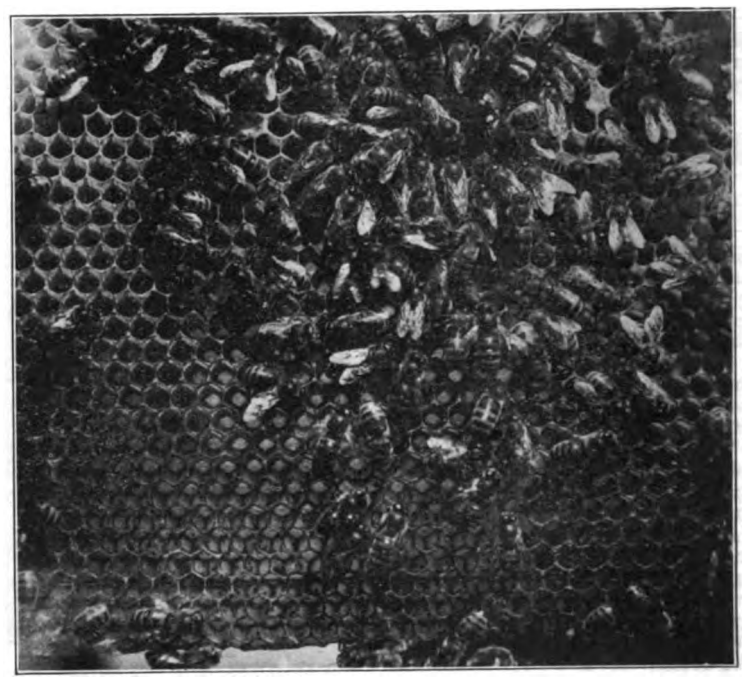
No. 2.—Remarkable Photograph of a Queen on a Newly-Built Comb.

American Bee Journal

ary of my own in the country on a more elaborate plan.

San Francisco, Calif.

DEMONSTRATION BY JOHN C. FROHLIGER OF CALIFORNIA.



NO. 3.—THE QUEEN IN THE ACT OF LAYING AN EGG.

More About European Foul Brood

BY F. W, L. SLADEN.

I was pleased to see Mr. Morley Pettit's insistence on bad smell as a frequent symptom of European foul brood, in a recent issue of the American Bee Journal. In England a stinking smell is considered one of the chief symptoms of this disease, while American foul brood is regarded as odorless. As European foul brood is said in America to have little or no smell, and American foul brood is the odoriferous kind, no little confusion has been caused on the other side, and English bee-keepers are inclined to think they are dealing with a different pair of diseases.

I recently had an opportunity of studying an outbreak of European foul brood among hybrid bees in England. As long as only a dozen or two larvæ were affected, there was only a slightly sour smell when the hive was opened, but when the disease advanced and 50 or more larvæ were rotting, an extremely strong and penetrating odor was given off. To me it was a "gamey" smell, like high meat, but opinions differ, and when I suggested to my assistant that it was an appetizing odor, he protested loudly, and had no word to sufficiently express its offensiveness.

Ottawa, Canada.

Loaf Sugar for Winter Feeding

BY EDWIN BEVINS.

I felt some reluctance about telling the story of 1912, but Miss Wilson's account of what occurred at the Dr. Miller place emboldens me.

In the fall of 1911 I packed 85 colonies for winter on the summer stands. The hives seemed heavy at the time of packing; but I fear that many were heavy with something besides honey. My winter losses amounted to 38 colonies. A few more were so weak that they died in the spring. My spring count was about 40 colonies.

When the days began to lengthen and the cold began to strengthen, last winter, and the snow got to piling up around the hives so that the entrances had to be cleared almost every day, I began to use cube loaf sugar. Unfortunately I did not use enough of it, and hence my heavy loss of bees.

The season was a poor one for honey, and the surplus not at all satisfactory, amounting to about 2200 pounds; two-thirds of it was extracted. I made an increase of colonies this season, so that at its close I had 76 colonies. I sold and shipped 50 of these in November, and lost one by queenlessness. I have 25 packed on summer stands. I sent to Chicago and secured a hundred-pound drum of cube loaf sugar. A common tin wash basin holds about 4 pounds of it when a little more than level full. I filled a basin full for each of the 25 colonies. I gave the sugar a good sprinkling with warm water, and then dumped the basin across the center of the top-bars after lifting the back ends of the quilts and chaff cushions. Some of the hives were so heavy that they seemed "tied to the ground," but I served all the colonies alike.

Dr. Miller does not feed the heavy colonies, but he winters his bees in the cellar and I winter mine out-of-doors.

The above has been written mainly with a view to call the attention of bee-keepers to the use of cube loaf sugar as winter feed. I am persuaded that bee-keepers can save many colonies by its timely use.

Leon, Iowa.

[J. L. Byer tells us that up in Ontario they feed the bees as much sugar syrup as they will store in the brood-chamber before winter. They think it pays. —EDITOR.]

Notes and Sidelights From the New York State Bee-Keepers' Meeting in Rochester, Dec. 17-19, 1912

BY F. GREINER.

In an address on foul brood, S. D. House said that pickled brood was the fore-runner of foul brood and that the whole cause of the disease was "filth," claiming that some strains of bees, and particularly the native black or brown bees, were such poor housekeepers that they often allowed dead larvae in the combs a sufficient length of time to undergo the process of decomposition. Then the dangerous and destructive bacilli would develop spontaneously, and the foul brood originate.

This idea or theory was later combatted by Prof. Burton Gates from Massachusetts, who claimed that the foul brood could not thus originate; there would have to be spores or germs of the disease present; without them there could be no beginning of the disease.

Mr. House further said that the American Foul Brood was harder to eradicate than the European. An old discarded bottom-board had started the disease again in his yard, the bees gathering the propolis therefrom, which contained the spores.

This able speaker could not place emphasis enough on keeping Italian bees. It is the only sure way to dispose of the diseases, he said; and if he had a black colony and he knew the disease was in the State, he would at once kill the old queen and after ten days substitute a ripe queen-cell of pure Italian blood.

The foul brood inspectors of the State and others testified that we have

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no race of bees in America which is as immune from disease as the Italians, the Carniolans being little better than the blacks.

In a discussion as to how the floor over a bee-cellar should be built, when there was no fire kept in rooms above, some facts were brought out which might save experimenters many dollars and a deal of annoyance. In the first place, a floor should never be packed with sawdust. Mr. Clark Borodino and Mr. Kenyon, of Camillus, had the same experience, viz: the timbers which had been surrounded by the packing material had rotted out within four years, making it necessary to rebuild the floors, etc. They now use dead-air spaces using building paper in addition.

In the discussion of bee-cellars the out-door wintering problem was incidentally touched on. Mr. Holtermann laid down a rule on which I have, myself, been working for several years. He formulated said rule in these few words: "Bees should not be wintered indoors if they can be wintered successfully outdoors."

In a way Mr. House, of Camillus, endorsed this, although he stated that his bee-cellar wintered his bees with only 1½ per cent loss. He said that out-door-wintering was preferable on account of the protection the bees enjoyed during the breeding season (Spring,) after bees usually are brought out of the cellar; this of course on the supposition that outdoor wintered bees are well protected either by regular chaff hives or winter cases. No man could afford to pack his bees after their being wintered in a cellar, just for this "Spring protection."

Another reason why Mr. Holtermann has changed from cellar wintering to out door wintering is, the latter method gave him more leisure during the winter. He could pack his bees early, sometime in October; then he could turn his back to them 'till April or May; whereas if they were in an ordinary cellar, the latter would have to be watched more or less all winter; and then would come the difficulty of guessing the best moment to set the bees out, the robbing afterwards and other unpleasant features. I confess I have to agree with Mr. Holtermann and I find myself building more winter cases all the time. I expected to build a bee-cellar under my shop, but I doubt if I will use it for the purpose intended when I get it done. I am using my house cellar at present and have done so for many years.

The question of the popular section of the future received some attention but no agreement was reached athough it cannot be denied that there is some clamor among the bee-keepers for greater uniformity not only as to sections, but as to all sorts of bee-keepers supplies.

We seldom have a bee-keepers' meeting without the question: how can I cure a lazy colony? Various remedies have been recommended. Removing a couple brood combs and substituting frames filled with comb or foundation was added to the list of remedies, also the changing of supers, i. e.—taking a super in which the bees are well at work and giving it to the lazy colony. It was considered an accepted fact that a loafing colony bent on swarming and prevented from so doing proves unprofitable and might better be allowed to swarm. Mr. Holtermann said he gave all his colonies a large entrance, as a means to prevent swarming, in other words he keyed up his hives with wedges one inch thick at the large ends. He left these wedges in summer and winter. It strikes the writer that, if it is a good plan to thus have hives arranged, he would make the bottom board so from the start and not bother with any wedges at all; make the space under the frames high enough to give this large entrance. In connection with the bottom board the writer also wonders how many have found it necessary, or at least desirable, to have the sharp point of a nail protrude above the long cleats of the bottom boards forming the bee-space under the brood chamber? A nail on each side protruding by ¼ inch will keep the hive body from sliding about when clamped to the bottom board by hive-staples, hooks or Van Deusen hive clamps. In moving bees on wagon or cars some such provision is needed and when using wedges as Mr. Holtermann uses them, his arrangement would be inconvenient in moving bees.

I want to mention Mr. Schamu's roller bottom-board which the inventor exhibited and explained before the convention. Dr. Schamu is most enthusiastic over his invention, says it will alleviate the annoyance of bees swarming and going to the woods; it saves a separate drone trap, because it is a drone trap itself, it provides ample ventilation for any occasion, has room to place feeders, prevents robbing, etc. It would lead too far to enumerate all his claims. After actual test in the apiary we will be in better position to judge as to the merits of this expensive addition to our hives.

Mr. R. F. Holtermann's address on extracted honey was listened to with much interest. Producing extracted honey is much safer than producing honey in the comb, because, he said, with only a moderate honey-flow a good grade of extra ted honey could be produced, whereas if comb honey was produced under like conditions a poor article would be the result. Essentials in extracted-honey production were "strong colonies, ventilation, shade, enough room given in time." He prefers to use an excluder, does not extract from brood-combs, uses as little smoke as practicable. In the extracting supers he uses eight frames in place of the usual ten, and when giving more room he neither places the empty one under the full one, nor on top of it, but takes four frames from the full one, exchanging for empty combs, raises the four full combs to the new super to be given in such a manner that the full combs are above full combs and form a ladder for the bees to ascend. Mr. Holtermann prefers to extract after each flow, to keep the different honeys separate, but he takes care that the last extracting comes just before the close of the harvest. He does not like to open hives for taking honey when bees are inclined to rob.

During the swarming season the colonies are looked over once each week, and when there are indications of swarming, any queen cells found are broken down; for this purpose the bees are dislodged from their combs at least the greater part so that none of the cells may be overlooked.

When taking the honey, one comb is taken after another, the bees are brushed off and the combs placed in empty hive-bodies to be taken on a wagon to the extracting room. Two men work together removing the honey, one holding the comb, the other with a brush in each hand brushes off the bees from both sides of the comb with one operation. Mr. Holtermann uses a 12-frame extractor and finds a 1½ horse power gasoline engine too small to do the work. After extracting, the honey is pumped into tanks, holding 3000 pounds each, left to clear itself a few days, is skimmed off thoroughly, when it is ready to be drawn off into receptacles.

Mr. French answered the question, "Shall we advertise honey?" with an emphatic "yes" but qualified it in this way: It is out of the question for us to advertise as the cigarette man does, or the chewing gum man, or the patent medicine man, the shredded-wheat man and others, because there are not the profits in our business the other named people can boast of. We cannot afford to spend money that way; if we did, honey would be too high in price, the man of moderate means could not buy it. We will have to advertise in a cheap way. Exhibiting extracted honey in attractive show cases in the grocery stores, he thought, would be as effective as any available method. Then we ought to set forth the comparative value of honey in our local papers.

Professor Burton Gates of the Massachusetts Agricultural College spoke very interestingly about many different subjects. He said the stingless bee was a myth or falsity. There were, however, strains somewhat disinclined to sting. About brood diseases and germs, etc., he said: "The different organisms which produced the different diseases had been isolated and if planted each would produce its certain disease. Gnarly apples for instance were not wholly due to imperfect pollenization but also to a fungus destroying the pistil or ovules." Of the many appliances of later origin he enumerated several that were a

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great help in the apiary, condemned others that were not so perfect. He thought that a good wire imbedder (electrical) was a good thing. He gave the practice of having extracted honey tanks in a room below the extracting room (basement) a "black eye," said honey should be pumped up and stored in the attic where it was dry and warm. He mentioned a new bee candy which was suitable for wintering bees and shipping bees without combs. The formula of the candy was as follows: 7 pounds granulated sugar, 1½ pounds liquid glucose, 1½ pint water, ¼ teaspoon cream tartar. Let come to a boiling heat of 238 degrees F, mixture to be worked on a slab.

Objections were raised by bee-keepers to the use of glucose in the candy.

Naples, N. Y.

Big Horn Basin of Wyoming

BY B. F. SMITH, JR.

Upon request, I am going to tell what I know of this locality. Not both sides of it however, but just the bright side. What I might consider the dark side, no doubt a great many readers of the "Old Reliable" might consider the bright.

The spring of 1911, April 26, we landed in Cowley with a car of household goods and 17 colonies of bees. We were one week on the road, traveling 1110 miles from eastern Nebraska. The bees were very weak, but we commenced feeding, and all of them responded nicely and were in good shape when the honey-flow started. The flow continued until some time in September, and we harvested 3250 pounds of honey, and made three divisions and no swarms. The bees were wintered in chaff hives, and all but six came through nicely. Three smothered by chewing a hole in a sawdust cushion, and the sawdust blocked the entrance. Two starved to death, and one died without any apparent reason. This left 14, to which were added by purchase 18 colonies in 8-frame hives. The colonies purchased were in movable-frame hives, but combs were built on starters, and looked as if they had not been moved for several years.

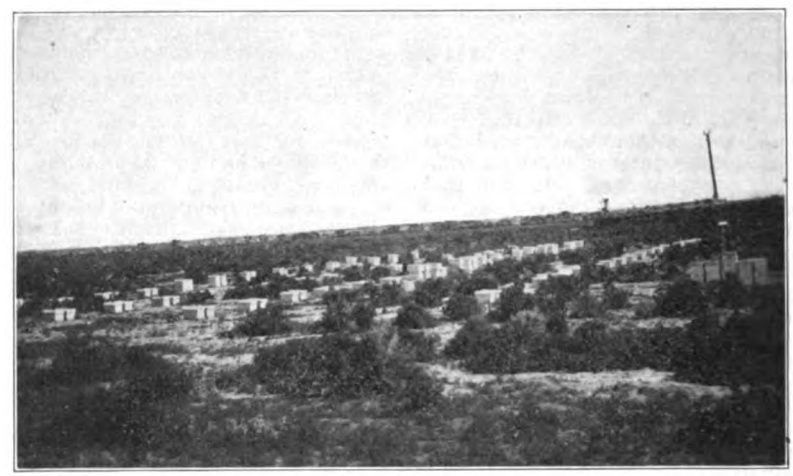
June 10, 1912, we placed all the brood with the exception of one comb in each colony over an excluder. Fifty Italian queens arrived June 18; 50 divisions were made June 19, and on June 20 all the brood in the original 32 colonies was again placed over excluders. Fifty more queens arrived June 29, and another 50 divisions were made June 29. The first divisions were given two combs of brood and one of honey, as the flow did not start until June 21. The bees built up very rapidly, and the last of July we commenced to extract from the original stock. Of the 100 divisions made more than 90 of them were successful. But 2 or 3 queens were missing upon examination 5 days after making the divisions.

About Aug. 10, it became apparent that the first divisions were getting crowded. We had to send a hurry-up order for supplies, and extract one or two combs from the brood-nest. We ordered 50 full-depth bodies, and gave all of them full sheets of foundation, but even this was not enough. We went to the wood-pile and put in use some 200 frames that we had thrown away. We used starters in these, as we expected to discard them again. We helped the weak ones, and gave the strong foundation to draw out. It looked as though we would soon be short of room again, but the last of August we had some cool weather and the storing stopped.

We have for our summer's work 140 colonies which we expect to winter on the summer stands. They are all in good shape except 5, which we were re-queening just as the cold weather started, and do not think the queens ever mated. Ordinarily we have the finest weather up to Thanksgiving, but this year it has been cold and raw a great share of the time. We have saved about 200 combs for feed, and our crop is about 7000 pounds of extracted honey and 200 pounds of comb. The flow is without a break from June until frost, and even after frost the bees gather on nice days until we get a very hard freeze. Bees can be bought here for $5.00 in home-made hives, and should pay for themselves the first year, besides providing a new colony.

Our honey-producing plants are sweet clover, alfalfa, buffalo-berry, wild currant and gooseberry, and some years the wild licorice is an abundant yielder. The honey, when produced in new combs, is very clear and heavy, and we think it is the *very best* honey on the market.

Cowley, Wyo.



"GREASE-WEED AND A $16.50 APIARY.

An apiary of 140 colonies, situated in an irrigated district of Wyoming. The natural growth from a $16.50 investment. Thirty-two colonies, spring of 1912, increased to 140.

Bees in Switzerland

BY ADRIAN GETAZ.

The information given by Mr. Widmer, page 345 of the December number of this magazine, concerning Swiss bee-keeping is very interesting and correct. There is however there, as well as here, quite a difference in localities. Dr. Miller and others have also noted some difference between the Swiss methods of bee-keeping and ours. These raise naturally some important questions.

ITALIANS VERSUS BLACKS.

Not only in Switzerland, but also in some other parts of Europe, the general opinion is that, taken altogether, the black bees are better than the Italians. I think that is an error, and the apparent inferiority is due to the conditions in which they were placed.

In the first place, the prolificness of a queen is very often injured by transportation through the mail, and the entire race is blamed merely because of an accidental circumstance. Then there is the question of mating. Throughout the whole of Europe the apiaries are small, numerous, and very close together compared to America. Furthermore, the majority of hives are skeps or box-hives, in which drones are reared in immense quantities; the "advanced bee-keepers" destroy their drones as much as possible, not wanting any "useless consumers." The result is what should be expected. The queens reared, mate with common drones of the neighborhood, and in a few years all traces of Italian blood disappear.

The third objection has been made here as well as there, very often. The Italian bees swarm too much, or rear brood at the wrong time, or something like that. This instead of an objection is an indication of the superiority of the Italian bees, and of the inferiority not only of the black bees, but of the

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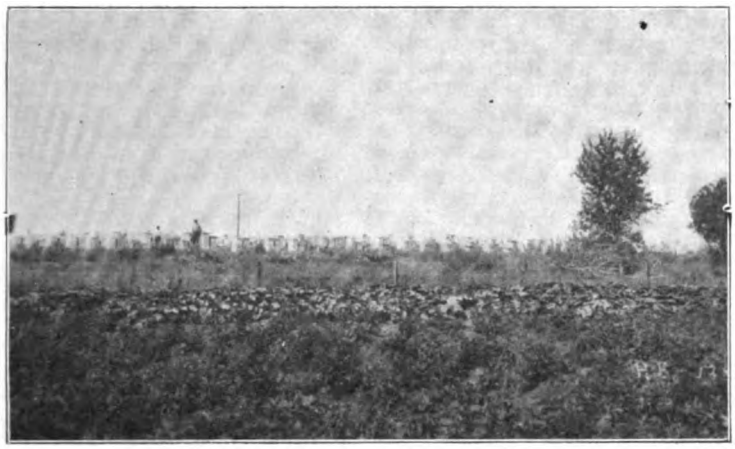

APIARY OF L. C. MCCARTY, OF NAMPA, IDAHO.
"This yard was started in the spring of 1910 with 70 colonies. There are now 450 colonies in modern hives. $6000 worth of comb honey was sold in three seasons."

apiarist himself. The Italians are more prolific than the blacks. They soon have their hives full of brood, and then, having no more room, swarm. What else could they do? If their owner had given them a larger hive, they would have remained, built up a stronger colony, and given far more surplus than the blacks. But some apiarists, like many other men, cannot see beyond the tips of their noses.

MATING STATIONS.

Something has been said about establishing mating stations such as exist in Switzerland. The conditions with us are not the same. As stated above, the apiaries there are small, very numerous, and close together, Many have skeps or box-hives, producing a large number of drones. Under such circumstances the chances of having queens mated with the drones of the same apiary are very slim indeed. Furthermore, and worse yet, if the improved stock is of the same color, the mismating cannot be detected. Thus improvement is impossible. To obviate the difficulty, mating stations are established in isolated places, the best of stock installed, plenty of drones are reared, and the apiarists send their queens there to be mated. The charges for it are very moderate.

INFLUENCE OF DRONES.

This brings us to the question whether the worker-bees derive their qualities from the drone or the queen stock. From both likely, but I think chiefly from the drone. In the human race, and in all of our domestic stocks, the influence of both sides is equal, as far as we know. But it takes both parents to produce the offspring, no matter whether this is male or female.

With bees it is altogether different. The unimpregnated queen eggs produce drones which of course derive their characteristics from their mother's stock. Impregnation has invariably the effect of changing altogether the sex of the eggs. Such being the male's power, it looks reasonable to conclude that the female is more like her father than her mother.

Occasionally hermaphrodites are found; that is, bees possessing organs of both sexes. Instead of being an intermediate or combination of both sexes, we find invariably some complete female organs associated with some complete male organ; for instance, a worker's head on a drone's body. This goes to show that where the drone influence reached it produced full female organs.

Coming to actual facts, we find Doolittle's assertions published two or three times in Gleanings in Bee Culture. He introduced the first Italian queens in his locality. All the mismated queens, either black or Italian that came during the first year, were necessarily producing bees of a first crossing. He says that the bees from a black queen fecundated by an Italian drone were invariably gentle, clinging to the combs, and in every respect almost like Italian bees. On the other hand, a cross between a black drone and an Italian queen gives workers usually very irascible, as many apiarists know only too well.

Frank Benton's experience corroborates that of Mr. Doolittle's. It was published in Gleanings some four or five years ago.

NON-SWARMING.

It is said that the improved blacks of Switzerland are almost non-swarming. I don't doubt it. But it is a question of management rather than stock. The European apiarists work exclusively for extracted honey. There is no difference in price there between extracted and comb honey. They use large hives, mostly the Dadant. Under such conditions very little swarming takes place, no matter what the stock of bees is. Mr. Dadant himself obtains as good, or even better results, as he can explain himself more fully.

Knoxville, Tenn.

Use of Smoke and Feeding Bees in Cellars

BY E. S. MILES.

Having noticed that smoke is not mentioned in connection with handling bees in cellars, and having nearly twenty years experience in cellar wintering I cannot help but think that many bee-keepers are losing the use of their smoke at one of the most needed places. There is scarcely a place where I value smoke more than in putting bees in and out of cellars. I am reminded of my early care and caution in getting strong colonies settled in the cellar without smoke years ago, by the query headed "A Problem In Cellaring" on page 28, issue of the American Bee Journal for January. But as I soon began to discard the bottom-board while the hives are in the cellar, as well as to increase my number of colonies, it became necessary to get them in with less time devoted to each hive. In answering the query referred to, Dr. Miller has given excellent advice as usual, but if I were to carry those bees in, I should not use a wet cloth, not because it will not be effectual, but because smoke and a little care in handling the hives is all that is necessary.

There is another important point in cellaring bees to avoid having them fly out ,and where conditions are such that they are likely to do so. This point is the time of day chosen to do the work. According to my experience the ideal time to cellar bees is when there is moonlight, and begin toward dusk in the evening. It is then light enough out of doors to see the hives and where to walk, yet the bees will not ordinarily take wing if handled carefully.

A candle may be set in the doorway of cellar, or wherever it will best light the cellar with a dim light. By having only about the same light inside the cellar as outside, the eyes are not required to re-adjust themselves every time one goes in or out, and one is able to work in a light not strong enough to induce the bees to take wing. I always want my cellar thoroughly aired, and as near the outside temperature as can be had, before beginning to carry in. Then I want two good smokers, with good dry fuel that will "keep a goin" while I carry in. If I leave off the bottoms I get along very well with one smoker for putting in the cellar. After taking one smoker down cellar and **thoroughly smoking the cellar**, I set the smoker up on end so it will keep going. I gauge the amount of smoke by myself. When the smoke becomes so dense in the cellar that I begin to cough, I kick the smoker over on its side thus checking the draft, until some of the smoke has escaped, when I put the smoker again in working order, keeping the air of the cellar about as

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smoky as I can breathe without much difficulty.

This cuts off the odor of angry bees and also sets the bees to making the scared hum one hears when they run to cluster. It is well known that when bees are disturbed, a certain number act as "guards" and rush to the entrance to attack whatever is disturbing their home. When they are thoroughly roused, a little of the poison is ejected which gives the peculiar odor of "angry" bees. This odor in a close place like a cellar or a cave seems to have a tendency to rouse up other bees, or make them worse if already partly aroused.

So instead of arousing the bees to a condition of defense or offense, it is better to give them a scare, use a little intimidation in the way of smoke it saves time and bees.

I pile my hives five to six high with 1½ or 2 inch strips under each end and bottoms off. Sometimes an extra cross colony gets aroused to the point of crawling out and jumping off when first set in the cellar, in which case I do not hesitate to smoke them enough to make them go back. If, accidentally, a colony or a pile is jarred so as to thoroughly arouse them, I shade my light to leave them in shadow, for a time, and also blow a lot of smoke alongside the pile. Of course I do not get hot smoke close enough to the cluster to scatter the bees or make them run off their combs, but use enough to thoroughly intimidate them

Some may fear damage to the bees by this way of doing, but I can assure them no damage results, at least in "this locality," and I have used these methods on hundreds of colonies for over 10 years. I would not leave bottoms on and use screens on entrance unless mice were very numerous. I try to trap most of the mice in my caves, but I have yet to see any damage, excepting once in a while a little hole or two in a comb. Not enough to pay me for bothering with screens and nothing compared to the damage bottoms do in the cellar, unless one takes off the covers.

Feeding in Cellar.

Another question is, "Can I feed my bees syrup in the cellar?" The answer is usually "better feed them enough in the fall to last 'till flowers come in the spring." This is good advince but does not fully answer this question. Many times, for one reason or other, a colony or more, may not have enough, and if good comb honey is not to be had and one does not know by experience that he can make candy right, you can feed them syrup, if it is a fairly good colony of bees, and a cellar with temperature of 44 degrees or higher. One winter our bees were thought to have stores enough until in March we discovered one colony dead, and on examination found them starved. We had previously made a batch of hard candy, being very careful to make it just as directed, and lost every colony we fed with it, so we concluded to try syrup this time. We had a fair idea of how many light or doubtful colonies we had, so we filled super combs with good thick syrup, by means of a tin can with perforated bottom held two or three feet above the combs ,which were laid in a large pan to catch the drip.

We thus prepared a super with three combs containing about 10 pounds of good thick sugar syrup for as many as we expected to find light. After letting these set a few hours over some receptacle to catch what would drip off, we lighted our smoker, took our candle, and after smoking the cellar fairly well, and having our feeding supers near at hand we began at one end of the pile of hives and taking off the top one put it on the proper foundation for a new pile, just the strip across the next hive to rest on, and whenever a hive was lifted that we were in doubt of having plenty to last six weeks or two months, our assistant would put one of the feeding supers on the strips, then we would set the colony on top of the super, and so on until we piled over all the piles in the cellar.

The bees were in fair condition except some were short of stores, and as we handled all carefully and quickly, none were much aroused except those which were fed. Every bee man knows that when a bee gets a load of sweets, whether from a feeder inside the hive or elsewhere, the rest rush out as though their lives depended on getting out of the hives instantly.

Well, as soon as a bee from the cluster got a lick of that rich syrup there was a stampede for out of doors, but as the feeding combs were in place of the bottom board and all tight between, they simply bumped their noses and stuck their toes into that syrup. The three shallow combs directly below the cluster caught the whole force as there was no way out of the hive except through this super. There certainly was quite a "hum" in that cave for a couple of hours, but after the syrup was taken up, all settled down and every colony came out fine shape. One or two even whitened their brood combs a little in the middle, in handling the syrup. Of course when we set the bees out we took them off of the now empty extracting supers.

If one has the bottoms on in the cellar it would perhaps be easier to remove the cover and put the feeding super on top, and the bees would be all the more certain to find it for it being on top, although all fair colonies will find it, as described above, in a cellar of proper temperature. If no empty extracting combs are on hand, one can, by using plenty of smoke, and working quickly, remove the outside combs, fill them and return them, but this would be too much labor perhaps except where one had only a few hives.

There is one way of feeding, which I believe, insures perfect wintering in 99 cases out of 100, yet I've never seen it mentioned in print. Set your colony in cellar, preferably well up from the ground, and use a deep entrance or no bottom, or the regular summer entrance may do, as it don't seem to matter so much about the entrance with this method. Now have your cover so it can be taken off easily and quickly and as soon as your colony is reasonably well settled in the cellar, remove the cover and lay enough good section honey directly over the cluster to run them until taken out of the cellar. This section honey does not need to be fancy, or number one or any better than culls, just so it is good ripe honey. Lay the combs down flat, the sections will hold the combs a bee space off the top bars, and after laying six or eight directly on the top bars. pile up a small pyramid if necessary, in order to get plenty on, then throw one or two thickness of heavy cloth over all, and let it fall over the sides of the hive 3 or 4 inches or more. A couple burlap sugar sacks or an old grain bag or two wil do.

In the spring set the colony on its summer stand with an entrance board reaching the ground, puff some smoke over the sections, shake what bees are clustered on them in front and replace the cover. A colony thus treated will come through in perfect condition almost invariably, but I confess I do not quite understand why.

I have often wondered how many who recommend hard candy have made and used it themselves. I do not doubt it can be made and used successfully yet as I said, I have found it very easy to lose bees when depending on it. As for me I would choose syrup in a good cellar in preference to candy if I had no safe honey to use.

Just one word on feeding, and the veteran can skip this: When you have fed your colony what you are quite sure is plenty, then feed it about five or ten pounds more If you follow this rule many a colony will be saved that would not otherwise be.

Dunlap, Iowa.

Plural Mating of Queens

BY ARTHUR C. MILLER.

Mr. Scholl's inquiry concerning the mating of queens, in the September number of the American Bee Journal, deserves more than passing notice. That queens do mate more than once before commencing to lay is a fact so well established that it seems almost unnecessary to re-assert it. But some bee-keepers seem to be unaware of it, and so are not infrequently at a loss to account for the appearance of offspring of certain queens.

For those unacquainted with the

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laws of inheritance, it may be well to state that the offspring of a cross between two pure strains are always uniform and generally present an appearance half way between the two parents. The offspring of the first cross are designated as the "F_1" generation. Mate members of the "F_1" together, and the offspring "F_2" are as varied as can be imagined; some are like one of the original pair, some are like the other, and others are like nothing in particular.

If, now, we consider a few hypothetical cases of queens mated more than once, we will get a little idea of the possible results to be looked for in actual experience. Take for example a thoroughbred Italian queen first mated with a drone of the same stock, and next with a pure black drone. Her offspring will be found as follows: Part of them will be typical of a pure Italian stock, and part of them will be typical of a pure Italian mated to a pure black; *i. e.*, all one, or all 2-banded, or possibly all 3-banded, but quite dark, the type of one or two bands, or of three dark bands being determined by the type of the Italian used. For instance, a pure golden mated to a pure black—or a pure Banat or Carniolan for that matter—gives uniform 3-banded leather-colored "Italians."

If a queen of the same pure Italian stock be first mated to a similar drone, and second to a drone of mixed stock, the results are quite different. Part of the offspring—not always half, by any means—will be of the typical pure stock, and the rest will be all sorts from "near Italians" to "near blacks," or whatever the alien blood was.

As to the cause of the plural mating of queens, the following hypothesis is submitted. A queen-bee, like most animals, has a period of "heat." Before it appears, she shows no inclination to fly or mate, and after the period—which may last 20 days—is over she never mates. While the period lasts she may mate one or more times; how many times I do not know, but I do know of several instances where they mated three times. This repeated mating of some individuals differs in no wise from individuals of higher animals. Some individuals will allow the approach of the male but once, while others may mate several times before repulsing the advances of the male. And so far as known, the behavior has no relation to the virility of the male.

Providence, R. I.

The Use of Lime in Bee-Cellars

BY A. F. BONNEY.

Returning from the Des Moines convention, the writer got into a discussion with a couple of friends regarding the use of lime in cellars in which bees are kept during the winter. I contended that *air-slaked* lime ceases to take up moisture as soon as the chemical action is finished, and that if a cellar is well ventilated as it should be, lime is almost useless, as even freshly-burnt lime takes up moisture but slowly, owing to the slaked lime which covers the unslaked portion.

One of the gentlemen I talked with uses the air-slaked lime for no other purpose than to take up moisture, putting it in supers, over the frames, and on cloth. It merely serves as a pretty good packing material.

Desiring to fortify my position, I wrote to Parke, Davis & Company, one of the largest firms of manufacturing chemists in the world, and the chief chemist replied as follows:

"Your letter of Dec. 14, addressed to Parke, Davis & Company, making some inquiries regarding the absorption of moisture by lime, has been referred to the writer, who happens to be incidentally a very enthusiastic amateur bee-keeper.

"As I have quite a library of bee-books, and also read the current journals on bee-keeping, I recognized at once the source of this question. It has been a matter of some interest and occasionally of some amusement, to read the articles which appear in bee-journals from time to time regarding the use of lime in preventing dampness in wintering cellars.

"Ordinary unslaked or burnt lime is practically anhydrous, or contains only a very low percentage of moisture. As soon as moisture comes in contact with it, it is absorbed with great avidity, thus forming the hydrated oxide of lime, and the hard lumps crumble into a powder.

"A hundred pounds of first-class freshly-burnt lime will absorb many gallons of moisture either from the atmosphere or from the floor of the cellar. As long as the lime is not satisfied, it will continue to absorb moisture if any is present. But as soon as the lime is saturated with moisture and converted into powder, it will not absorb any more water. Of course it also has a tendency to absorb carbonic acid gas, and if enough of this is present the hydrated oxide of lime will eventually be converted into calcium carbonate or lime-stone. This is the chemistry which underlies the hardening of mortar and its conversion into a hard cement which holds bricks together.

"Turning now to the practical end of this question, there is no doubt if the hard, freshly burnt pieces of lime are scattered through a bee-cellar, that they will continue to absorb moisture until they are converted into powder. The more moisture it absorbs the more slowly will the process take place and the less efficient the lime becomes. When it is converted into powder it is of no use as an absorbent. This answers your question as regards renewal. A man cannot simply place a bushel, or a barrel, of burnt lime in a cellar and expect that it will keep it dry for an indefinite length of time. To be used effectually it should be scattered over the floor or placed around in different parts of the cellar in shallow trays, and as soon as it is converted into powdered form it should be thrown out and new lime distributed.

"One hundred pounds of lime, such as is purchased from the lime-kilns and shipped, contains from 10 to 25 percent of impurities, consisting of clay, magnesia, iron and other foreign substances, so that it will not absorb over 24 pints of water and 62½ pounds of carbonic acid.

"Even these results are somewhat surprising, and the inexperienced bee-keeper would undoubtedly feel inclined to say at once, 'Here is a most effective and cheap method of removing all dampness and carbonic acid gas from my cellar.' The effectiveness of lime for this purpose, if properly distributed as above indicated throughout various parts of the cellar in shallow trays, cannot be gainsaid. We must, however, reduce our estimate when looked at from a practical view-point; for the reason that freshly-burnt lime will absorb water very readily when first exposed, but its avidity for water, and its rate of absorption decreases steadily as the process proceeds. It would require many months for 100 pounds of lime to absorb all the moisture of carbonic acid gas necessary to satisfy its chemical affinity, and the process would finally become so slow as to be absolutely useless for all practical purposes.

"Just when it reaches the limit of practical and available absorptive power of either water or gas, is largely a matter of theory or guess work, and would depend upon conditions in the cellar itself. Very excessive moisture from continued seepage from the floor or walls would quickly use up the available power of 100 pounds of lime. On the other hand it has, I think, been fairly demonstrated that a reasonable amount of moisture in the bee-cellar is not in any way objectionable, and in this case particularly, if it were somewhat crowded, the principal value of the exposure of lime would result in the removal of the carbonic acid gas, which is well known to bee-keepers to constitute a disturbing factor, perhaps even more deleterious in its effects upon bees than moisture.

"Summing up the entire matter, I would suggest that the use of lime in bee-cellars can do no harm, and would probably be very useful and satisfactory provided it is properly exposed in sufficiently large quantities, and that the supply is renewed as soon as the greater portion of the hard, stony lumps or particles are converted into a powder. It might be well to remember in this connection also that this lime will continue to absorb carbonic acid gas long after it has lost the power of absorbing moisture. In fact, powdered lime rendered distinctly moist is better for the absorption of carbonic acid gas than the dry lime.

"Perhaps also a note of warning may not be amiss for some of the fraternity who desire to use lime. It is well known that lime, when reduced to

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a fine powder, is a caustic alkali, and is very irritating when taken into the nose, mouth or lungs of animals. It should certainly prove very much more irritating when taken into the numerous spiracles or breathing tubes of bees. One might set a lot of this irritating powder afloat in a bee-cellar if he happened to be a little careless in handling the lime in it."

J. M. FRANCIS.

This leaves but little to say. Mr. Francis explains fully that "taking up moisture with *avidity* does not mean taking it up with *rapidity*. Were it so, a cellar would become as hot as an oven, as will be apparent when lime is slaked hurriedly for mortar.

When lime is put into a box, as in the case of an X-ray machine, which has a cubic capacity of not over 50 cubic feet, it soon renders the air free of moisture, but when fresh air is constantly supplied, as it should be in a cellar, it will require large quantities of fresh lime to make a perceptible difference in the amount of moisture in the air, and its greatest benefit is its absorption of carbonic acid gas.

Buck Grove, Iowa.

Montana as a Bee-Country

BY WM. SCHULZE.

Reading in the Bee Journal about the merits and superiorities which certain sections and localities of some of the States are said to possess, I have not yet come across anything that could beat the prospects which await the apiarist in certain parts of Montana.

I settled here at Chance two years ago last fall, and bought from a number of farmers 60 hives of bees, which had never had any care or attention. As it was late in the season, and I was overcrowded with other work, I could not spend much time with them, and consequently did not expect many of them to pull through the winter nor do much the following summer. However, they surpassed my keenest expectations, producing 4000 pounds of honey besides 50 percent increase.

Owing to an unsual early approach of winter, I was unable to build a shelter, and had to let the hives stand out in the open. My own experience, as well as those of others back in Wisconsin, made me fear that I would lose almost the entire stock; for the winter was longer and more severe than any winter in this part of the State for the past 10 years. To my surprise I lost only 15 percent; of course, the colonies had been weakened considerably. Neverthless, this season they produced $600 worth of honey. One little, puny colony from which I did not expect anything, produced $10 worth of honey, besides enough to feed itself through winter.

The bees had to go a distance of 4 miles to gather the honey down in the valley, where thousands of acres of alfalfa are in bloom from June until September, with an abundance of sweet clover. Had I been closer to the alfalfa, and better fixed to take care of my colonies in an up-to-date scientific way, I should have at least doubled the amount. The nectar supply from the alfalfa and sweet clover is inexhaustible, and in 10 years there has been only one year when alfalfa was a failure from the standpoint of the bee-keeper, and that was caused by a bug destroying the blossoms. But even in such a year there is enough sweet clover and other nectar-bearing shrubs and plants to ensure against complete loss.

There is no fear of a drouth, for the country is well covered with irrigating ditches from streams which have always an abundance of water; neither are there any of the disadvantages and losses to encounter which sometimes accrue through periods of too heavy and continued rainfall. The country is free from bee-disease, and one of its greatest advantages is that there is no need of out-apiaries, as the honey-bearing crops are so plentiful that one apiary can be made to consist of as high as 500 colonies.

So far, I have sold most of my honey to the local dealers. I intend to produce extracted honey more extensively, as there is a growing demand for it, and some of my experiments have shown that I can harvest $20 worth from one colony. As I am going to move down into the valley this winter, and will be considerably better prepared to take care of my bees, and to conduct my business on more improved lines, I expect to effect an increase next year over this year's profit of at least 100 percent.

What do Wisconsin bee-keepers think of the prospect? Wouldn't some of my bee-keeping friends back there who are discouraged by frequent failures, and have struggled for many years with adversities of climate and conditions, vainly striving to win fame and fortune in the field of apiculture, wouldn't they be pleased or willing to change their unkind and unfavorable surroundings by emigrating to the beautiful and nectar-laden alfalfa valleys of Montana?

Chance, Mont.

DR. MILLER'S ANSWERS

Send Questions either to the office of the American Bee Journal or direct to DR. C. C. MILLER, MARENGO, ILL. He does NOT answer bee-keeping questions by mail.

Eight and Ten Frame Hives for Wintering

I have 7 colonies of bees, 4 in 8-frame hives and 3 in 10-frame. At 1:30 today the bees of all the smaller hives were flying while the others were not. I examined them, and found one of the colonies dead, though there was about 30 pounds of nice honey left. In the dead colonies there was a double handful of bees, and lots of drones.

I cannot account for this. It looks as if 8-frame hives were better for wintering in northern Iowa than the 10-frame. All the colonies had plenty of honey. IOWA.

ANSWER.—The number of colonies is rather small to deduce a general rule; but even if you had a larger number it is not a dead open-and-shut affair that the smaller hives are better winterers. As to that dead colony in the 10-frame hive, it's about certain that the size of the hive cuts no figure. They had no normal laying queen, and had not had one for weeks, for the dead bees were few, and part of them were drones. You have left then the 4 8-frame hives and 2 10-frame hives, and you are evidently of the opinion that the bees in the latter two were in too poor condition to fly while the bees in the smaller hives flew well. Well, as there were only 2 of them, it might just happen that those 2 were poorer than the others. But did it never occur to you that it might be that those 2 colonies did not fly *because they were in too good condition to fly?* That would be my guess. December 28 the bees had not been confined very long, and those 2 colonies were doing so well that they did not yet feel the need of a flight. At any rate, wait until spring, and then you can tell with more certainty which has done the better.

Sugar Syrup With Tartaric Acid

Yesterday (Dec. 30) I was examining the colonies I am wintering in the cellar, and I found one that I concluded had starved. There was about 12 pounds of sugar in the combs candied hard. My record shows that on Sept. 20 this colony had about 15 pounds of honey. I fed them 20 pounds of sugar syrup with one ounce of tartaric acid to each 10 pounds of sugar. I am afraid some of the rest of my bees will go the same route. One dislikes to lose them after feeding and giving them the best care one can.

I have read of some who feed sugar syrup without using acid, and do not have any trouble, and it seems that there is little or no trouble where acid is used. Last fall some of my bees were carrying out candied sugar in a week after I fed them.

It is possible that I have not been making my syrup right. The way I made it was to place a boiler of water on the stove and let it come to a boil, then add the acid and stir it well. I then set the boiler off the stove and stirred in the sugar. I used 2 pounds of sugar to one of water. OHIO.

ANSWER.—I must say there is something I don't understand about this sugar-acid business. There are those who, as you say, insist that no acid is needed, and they are very emphatic about it. A very few say that the sugar hardens in spite of the acid, and you are one of the unfortunate few. The time and manner of feeding may have something to do with it If you feed as early as August or the first of September, and use more water than sugar, I don't believe acid is needed. Even if you feed heavier syrup, if you feed it slowly, there should be no trouble. But with late feeding of thick syrup, I should feel safer with the acid. I hardly see why you should fail; you used more acid than I ever used, and I never had any trouble, although I have had much experience. Still it is possible that the mode of proceeding may have something to do with it, and I'll tell you how I proceeded, when I fed late with heavy syrup: Water was put into a vessel on the stove, and when at or near the boiling point sugar was slowly stirred in at the rate of 5 pounds of sugar to a quart of water. The stirring was continued until the sugar was dissolved, so that the sugar might not settle to the bottom and be burned. When the sugar was dissolved, an even teaspoonful of tartaric acid

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for every 20 pounds of sugar, previously dissolved in water, was stirred into the syrup, and it was taken from the fire. I would hardly suppose that your reversing the order would make any difference; still it might.

Cappings Melters

1. Is there any melter that will do fast work and not injure the flavor of the honey that goes through it?

2. In Feb. 15, May 1, and Nov. 15 (1908), issues of Gleanings in Bee Culture there were three melters described. Are any of these satisfactory? The honey that comes from the melter would be put in with the rest and bottled for a fine trade. MONTANA.

ANSWERS.—1. Maybe; but as the Scotchman says, "I hae ma doots." To do fast work there must be considerable heat, so that at least a little of the fine flavor would be hurt.

2. Carefully managed, they may be as good as any. But for the finest grade of honey you will likely find it best to keep out any that has been heated with wax. Still, I may be mistaken about this, and if experienced producers say they secure honey from melted cappings not at all affected by the melting, I am ready to stand corrected. The large experience of Editor Dadant will enable him to give valuable information. [Having additional inquiries on the subject, we hope to go into the matter at length in a month or two.—EDITOR.]

Clipping Queens' Wings—Miscellaneous Questions

1. If the queen's wings are clipped and queen-cells are cut out every 10 days, will that prevent swarming?

2. When a clipped queen goes with a swarm and finds she cannot fly, will she return to the hive, if it is low on the ground so she can crawl in easily?

3. Is the quality of honey of the Carniolans better than of other races of bees? I have been told so, and that they don't gather honey-dew as much as the other bees. Is there any truth in the statement?

4. The other day a book came to me from a friend in Missouri. It was Dr. Jones' book on how to prevent swarming by operating. What do you think of the plan?

5. Don't you think there is a tendency to produce extracted honey instead of comb? It looks that way to me. Extracted honey has put the price of comb honey down so low in this vicinity that it hardly pays. ILLINOIS.

ANSWERS.—1. The clipping of the queen's wings will not make a particle of difference about a swarm issuing. A swarm will issue exactly the same as if the wings were whole. Cutting out queen-cells every 10 days may make a great deal of difference and it may make very little. In the ordinary course of events a prime swarm is likely to issue when the first queen-cell is sealed. If, at any time before this, you cut out all cells that are started, the bees will be likely to start fresh cells, but this second time they may not wait for the sealing of cells, and the oftener you cut out cells the more eager they may be to swarm, so that finally a swarm may issue immediately after you have cut out cells. Sometimes, however, cutting out cells once or twice in the season may prevent swarming entirely. I think the character of the bees has something to do in the case, some bees being much more given to swarming than others.

2. Generally she will; but sometimes she may wander off or enter the wrong hive.

3. The quality of honey gathered from the same source will no doubt be the same, no matter what bees gather it. I don't know whether Carniolans are less inclined than others to gather honey-dew. I didn't know it was claimed for them.

4. I think that shaving off the heads of all sealed brood will be likely to prevent swarming; but I don't suppose many would want to use such a plan.

5. The tendency toward extracted or comb honey is somewhat pendulum-like. Not so very long ago there were some who urged that more attention should be given to extracted, and just now it is the other way. Each one must judge what is best for himself for his own market. The scarcity of an article is generally supposed to raise the price, and if all others in your region extract, that ought to make comb scarce and high. If, however, others find they can make more extracting, perhaps you might, too.

Color of Hives—Overstocking—Winter Feeding—Drone Comb

1. My bees are wintering very well. I think. We have been having some frost every night the past two weeks. Which is the best, to paint each hive alike or say three different colors? Paint one super white, one red, and the other blue, and then mix them together when they are put on the hives? Some think that when the hives are all the same color the bees will lose their location.

2. Is there any way to judge how many bees to keep at each apiary? Two years ago I had an apiary of 45 colonies; they gathered 22 cases of honey, and they had enough to winter on. A bee-man told me he thought I ought to keep 150 colonies here at this apiary. Would I have gotten as much honey, per colony, as I did with the 45? Then there would be the extra honey for the 150 colonies to live on. I would have more bees to store honey, but they would have to have honey to live.

3. Which is better, to feed bees liquid or granulated honey in winter putting the granulated honey right above the cluster of bees? I do not think it would start robbing so easily. I leave my bees on the summer stands, and close the entrances to 2 inches.

4. Do you think it pays to put on queen-excluders where one runs for extracted honey? I have an odd sized hive now, but I hope to get the 10-frame standard size in the near future, and want things up-to-date.

5. How many drone-cells do you think it is necessary to have in each hive? Some of my hives had so much drone-comb that I melted some of it up and put in foundation. ARIZONA.

ANSWERS.—No doubt the bees are guided somewhat by color, as you will easily see when the sun shines brightly on the front of a hive which is nearly always in the shade. The bees plainly show by their hesitation in front of the hive that they note the difference. So differences in color ought to be a help about recognizing their hives. But I suspect that they are guided a good deal more by form than by color. I have had two or more nuclei in the same hive, and with entrances only 6 inches apart I do not believe there was as much chance for entering wrong hives as there would be in separate hives 4 feet apart in a straight row. For in the latter case all would look alike, while in the case of the nuclei in the same hive the entrances at different parts of the hive gave the bees the advantage of the different form at or about the entrance. A tree, a little bush, or a post, in front of a hive will, I suspect help more about locating entrances than all the paint you can put on the hives.

2. I have been trying for 50 years, right in the same location, to learn how many colonies could be kept without overstocking, and I don't know yet One great trouble is that no two years are alike as to yield. In a a poor year there may not be nectar enough for 25 colonies, while in the very same spot a good year may give abundance for 100 colonies. And you never can be entirely sure in advance whether the year will be good or bad. If the 22 cases made by your 45 colonies were 22 cases of 24 sections each, that would be about 12 sections per colony. If that was all the surplus that could be stored by decently good bees, it is doubtful that a larger number would have given so very much more For you are right in counting the honey gathered by the bees for their own use, and it is generally a good deal more than the amount they put in supers. Suppose it takes 200 pounds per colony for their own use, and that each colony yields a surplus of 100 pounds. Each colony would then gather 300 pounds, which would be 13,500 pounds for 45 colonies. Now suppose the field yields 15,000 pounds. There would be 1500 pounds that would go to waste, and you might just as well have 5 colonies more to gather it all. But suppose you plant 150 colonies. They would need 30,000 pounds for their own use. But the field yields only 15,000, and so you would get no surplus and would have to feed 15,000 pounds.

3. That's hardly a fair question, for there ought to be no feeding in winter. But where there has been such bad management that certain colonies must be fed in winter or starve, then the best thing is to give them combs of sealed honey. If these are not to be had, and it is a question between liquid and granulated honey, then like enough the latter should have the preference, placed as you say directly on the top-bars over the cluster.

4. As things are generally managed it pays to use excluders, for without them the queen will be likely to lay in the extracting supers. E. D. Townsend, however, succeeds without excluders. When a second super is needed, instead of putting it under the first he puts it on top. He claims that if the empty super be put immediately over the brood-chamber the queen will be likely to enter it promptly, whereas if it is put on top, the queen will not go up through the partly-filled super.

5. I doubt that it is really necessary to have any drone-comb except in those hives which contain such good stock that you want to rear drones from them. Some, however, believe in having perhaps 2 inches square in each hive.

Yellow Flowers—Yellow Honey—Requeening—Comb or Extracted?

1. I have been told yellow flowers tend to make cappings yellow too, or, in brief, that the bees will cap honey from yellow flowers with a yellow capping. If this is true, please explain.

2. To requeen all or part of an apiary with ripe cells from a breeder, I thought of dequeening about Aug. 1 and introducing ripe cells. The bees hatched from eggs laid by the old queen from Aug. 1 to 14 (when the new queen would begin to lay), would not, I think, aid materially in the harvest, which is about July 10 or 15 to Aug. 25 or Sept. 1. How would this work? and how are cells to requeen with?

3. Editor Root, in Gleanings in Bee Culture, bewails the rush of producers to extracted honey production, predicting a scarcity of comb in the near future. Should this hinder or deter me from going into extracting if I dispose of my whole crop direct to the consumers, and accompany it with a printed and verbal propaganda of education? Really, if a bee-keeper is careful in his producing, extracting, liquefying, etc., I can see no reason why any one should prefer comb honey to extracted. It seems to me that one big mistake of most honey producers is to ship out and neglect the consumer trade near home; however, I noticed several articles in journals on the subject of developing the home trade. COLORADO.

ANSWERS.—1. Yes. it is true at least of some flowers, dandelion, for example. I suppose the bees get the yellow coloring from the honey or the pollen.

2. It ought to work all right. Requeening with cells is all right, only, of course, there

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will be less break in the rearing if laying queens are given.

3. You have got the thing down pretty fine, and you are dead right in your views. If you are producing a fine brand of extracted honey, and have a satisfied lot of customers, don't you go to fooling with comb honey.

Using Sections Again

Sections from which the comb has been cut have marks of the comb attachment around the inside, what would be the result if such sections were placed in the center of a super over a strong colony of good section workers; it being understood that no foundation is put in, nor any change made after cutting out the comb? NEW JERSEY.

ANSWER.—I never tried it, but my guess would be that although the bees might not follow pattern closely, they would generally come near enough to it to make straight sections between separators. Of course, the more of the old comb left the more effect it would have. If you try it, please report.

Plan for Requeening

I wish you would publish, during this winter, a statement on what you think is the best method to rear queens for requeening. I will give my idea:

In the spring, when my bees are well built up and strong, I would get a nice lot of queen-cells capped over, select cells from my best honey gatherers, put them in a queen-nursery, placing this in a strong colony to hatch, and take care of them until wanted for introducing into colonies, which I will make queenless a few days before. NEW YORK.

ANSWER.—Your plan, if carried out correctly, ought to work all right. Although I don't believe it is quite so well to have queen-cells in a nursery as to have the bees closely surrounding the cells at all times, yet the nursery is quite a convenience. The Stanley nursery has the advantage that the bees are not excluded from the cells, as they can pass readily through the excluder zinc of which the cages are made. If you use a nursery that does not allow the bees free access to the cells, then it is best not to cage the cells until nearly time for the virgins to emerge. It is just possible that you would do as well to give cells to the queenless colonies as to wait for the hatching-

Clipping Queens' Wings

Clipping queens' wings, as I have repeatedly read in your journal, is in vogue among American bee-keepers. I would like to make a trial of it in the spring, but have some misgivings. Can one be sure that the issuing swarm will find and cluster about the queen, which, perhaps, has fallen upon the ground a few steps from the bee-house? Or can it also happen that the swarm does not find the queen, and consequently returns to the hive from which it issued? GERMANY.

ANSWER.—When the swarm issues, of course the clipped queen falls on the ground. If there is no one on hand to pick up the queen it very rarely happens that the swarm finds her and clusters about her. Indeed, in all my experience I never knew such a case. Sometimes the queen will be found at a little distance with a little cluster about her, perhaps as big as a walnut. Generally however, she will be entirely alone. The swarm will return to the hive, perhaps in less than five minutes, after circling around in the air for a little time, and will pay no attention to the queen, even if she be quite near the hive on the ground, its only desire apparently being to hurry back into the hive as soon as possible. Often the swarm will cluster on a tree, just the same as if the queen were along, and it may remain clustered there 5, 10, 15 minutes longer. In most cases the queen will find her way back into the hive if she is left to herself. The business of the bee-keeper, however, is to pick her up, put her in a cage, move the old hive away, and put an empty one in its place, and then when the swarm returns to let the queen run into the hive with the swarm.

In Germany, where you use bee-houses, it would, I suppose, not be possible in many cases for the queen to find her way back into the hive; so it would be necessary for some one to be on hand at the time of swarming. Even so, it ought to be less trouble than to manage a swarm whose queen's wings are not clipped.

REPORTS AND EXPERIENCES

Queen-Rearing

On page 371 of the December issue, under caption of "Queen-Rearing Pointers," Frank F. France says: "This device, as pictured here, is the invention of H. Perkins, of Artesia, Calif., and is the best device I have yet seen to do the work required," etc.

We used this method before Mr. Perkins was heard of here. I am almost sure it is the modified Doolittle system. We were very successful in rearing queens by the method, as outlined therein, also by the grafting process. GEO. W. BERCAW.

Glendale, Calif., Dec. 17, 1912.

Good Prospect in Wisconsin

Bees went into winter quarters in excellent condition. I predict very successful wintering. White clover made a strong growth last fall, and is now covered with a light snow. I look for a bumper crop of honey next year. C. SHELDON.

Elroy, Wis., Dec. 28, 1913.

Louisiana Experiences

My bees have done fairly well this year, although we have had scarcely any rain since Aug. 10, consequently I did not have any fall flow except what the bees got from cotton. It gave from 5 to 10 pounds in the super. Swarming, which was 300 percent this year, has cut the surplus low, although my colonies averaged $5.25 each in honey alone, and I have not taken any honey out of the brood-chambers except the amount that was at the top of a frame of brood which I always give to the swarms. This is the surest way to hold a swarm.

My bees have had a cleansing flight every week, and some colonies have plenty of brood yet, but these colonies are the ones that have plenty of stores and bees.

I cut out and transferred to a pane of glass, 10x14 inches, Dr. Miller's method of rearing queens; also the picture of the frame of cells, and it is one of the pictures that adorn my home.

The American Bee Journal gets better and better all the time. W. R. CUNNINGHAM.

Rayville, La., Dec. 11, 1912.

Bees Going into Winter Quarters Short of Stores

It was not a very good year for honey here on account of the cold and wet spring, and the hot and dry summer. I only secured 1700 pounds from 45 colonies, spring count, and increased to 60.

My bees went into winter quarters in light condition: they did not seem to get any fall feed, as it was cut off by early frost. This is the first time it has ever happened to me. It caught me unawares, and I fear the loss will be heavy. The bees had enough he last of August, but it seems they ate up their honey instead of bringing any home after that date. E. M. LAWRENCE.

Mayfield, N. Y., Dec. 16, 1912.

[Put a cake of sugar candy over the cluster of each hive which is short of stores.—ED.

A Sweet Extractor

Did you ever realize how sweet a honeyman can be at times? I never did until some one put into my dress-suit case, the other day, a leaky can from which all the honey had not been taken out, and omitted to put any wrappings around the can. I found the contents and myself completely covered with honey before I got through with the mess. So that is why I especially admit that I am a sweet extractor. EDWARD F. BIGELOW.

Sound Beach, Conn.

A Good Season in Ontario, and Getting Ready for Another

I have been fairly successful with my bees this year. I secured about 900 pounds from 14 colonies, spring count, and increased to 26 by natural swarming. In the fall of 1911 I went into winter quarters with 20 colonies and came out with 13. I bought one in the spring to make up the 14.

I have 29 colonies, all packed snugly with a superful of chaff on top; the sides and roof are covered with tar paper. We had a splendid honey-flow from clover this year but the buckwheat was an entire failure. I got 300 pounds of fall honey from wild plants. I have sent in my order today for my bee-supplies, and I am looking forward for a big crop next year. R. R. VICTOR TIPPETT.

Quays, Ont.

The Odor of European Foul Brood

Concerning a letter of Morley Pettit's (December number, page 359), referring to an article of Dr. Miller's, page 324, the difference in odors may be explained on the basis of mixed infection. The bacillus causes the death of the larva, which, being under most favorable conditions of heat and moisture, at once becomes the prey of the ever-present germs of putrefaction.

It is quite possible that the bacterial flora of one "locality" may be much more productive of malodorous gases than those of distant "localities." Even in the same neighborhood, and under seemingly identical conditions, the predominance of one "breed of ducks," or the blending of various strains, may produce great variations in odor.

This appears the most rational explanation of the difference noted by two observers, neither of whose accuracy can be questioned. F. A. STOCKDALE.

Coal City, Ill., Dec. 7, 1912.

Kerosene to Prevent Robbing

I see considerable discussion lately in the bee-journals concerning robbing. The beginner often has to confront this problem. It is an old and true maxim, that "An ounce of prevention is worth a pound of cure." Many cases of robbing are started by carelessly spilling honey about the yard. When such accidents happen I pour a little kerosene over the honey and the bees continue to pursue the even tenor of their cares without knowing there is any loose honey about so completely does the kerosene absorb the aroma. ADDISON GOULD.

Weston, W. Va.

A Wisconsin Report

I took 39 colonies out of the cellar last March with no winter loss. Last summer I had 16 swarms, got 1200 pounds of very fine comb honey, which I sold for 15 cents a pound. JOHN CLINE.

Darlington, Wis., Dec. 22, 1912.

What Influence Bee-Papers Have

Enclosed find check for the American Bee Journal for one year. I don't want to miss a single number. Often I find one item worth

American Bee Journal

a year's subscription, and in my inspection work it is easy to tell without asking if one takes a bee-paper. I find very few make a success of bee-keeping who do not take one. My bees are flying today with the thermometer at 60 degrees. JOHN L. BYARD.
Marlboro, Mass., Dec. 16, 1912.

California Co-operation

The California Bee-Keepers' Association will market its members' product in the future, and we intend to create such a demand on the home market that you of the eastern portion will never come in competition with us. It is our belief that California can consume all the table honey that we can ever produce.

No rain yet, and the bees are wintering very poorly. GEO. L. EMERSON.
Los Angeles, Jan. 3, 1913.

A Good Report from Minnesota

Enclosed you will find a picture of my apiary of 52 colonies of Italian bees. Like most of the bee-keepers here, I lost heavily last winter. Out of 46 colonies I managed to save 26. These 26 were increased to 58 by dividing. I then sold 6 at a good price. The 52 colonies gave me a surplus of a little over 200 pounds of mostly white clover honey—not so bad when one considers the awful condition they were in when taken out of the cellar, and the cold and backward spring we had. You will notice the apiary is situated in an orchard; all colonies facing the south. I use the 10-frame hives, and run for extracted honey mostly. I also use the queen-excluders, as I simply cannot get along without them. My hives are all numbered, and a record is kept of all queens and colonies.

As I had a little trouble in keeping the grass down in front of the hives, I tried an experiment. I put, as you will see in the picture, six inches of sawdust about two feet wide in front of the hives, but it was a failure, as in about four weeks the grass came shooting up through the sawdust. The grape trellis you see in the picture, has every year given a good crop of grapes, but in all these years I have never once found that the bees punctured the grapes, as some foolish writers claim they do.

GOTTLIEB A. BARBISCH.
La Crescent, Minn.

Corn Meal and Honey

Corn-meal pudding and honey make a licking good combination for old folks. Try some. EDWIN BEVINS.
Leon, Iowa, Dec. 10, 1912.

MR. G. A. BARBISCH'S APIARY AT LA CRESCENT, MINN.

QUEEN-BREEDING APIARY OF L. OF CLARINDA, IOWA.

Wants, Exchanges, Etc.

[Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

BEES AND QUEENS.

GOLDEN QUEENS that produce 5 and 6 band bees. Untested, $1.00; Tested, $3.00.
Robert Ingham, Sycamore, Pa.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
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FOR SALE—About one hundred black and hybrid Queens. Will ship any time after March 1st at 40 cts. each, or 12 or more 35 cts. each. D. E. Brothers, Attalla, Ala.

IMPROVED golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers Send for price list. E. E. Lawrence,
1A8t Doniphan, Mo.

PLACE YOUR ORDER NOW for early delivery. Untested Queens, one for $1.00; 6 for $5.40. Tested Queens, one for $1.50; 6 for $8.40. Write for prices of Nuclei and full colonies.
W. J. Littlefield, Little Rock, Ark.

GOLDEN QUEENS that produce Golden Workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1.00 each; Tested, $2.00; Breeders, $5.00 and $10.00.
2Atf J. B. Brockwell, Barnetts, Va.

QUEENS—Improved red-clover Italians, bred for business; June 1 to Nov. 15. Untested queens, 75c; select, $1.00; tested, $1.25 each. Safe arrival and satisfaction guaranteed. 1A1y H. C. Clemons, Boyd, Ky.

GOLDEN and 3-band Italians, also gray Carniolan queens. Tested, $1 00 each; 3 or more 90c each. Untested, 75c each; 3 to 6, 70c each; 6 or more, 65c each. Bees per lb., $1.25; nuclei per frame, $1.50. A discount on orders booked 30 days before shipment. 1Atf
Bankston & Lyon, Buffalo, Leon Co., Tex.

WE will requeen all our 2000 colonies this spring. We offer the one-year old queens removed from these hives at 40c each; $4.20 per dozen; $30 per hundred—delivered any time before June 1. Your money back if not satisfied. First come first served. Book orders now. Spencer Apiaries Co.
1Atf Nordhoff, Calif.

HOW ABOUT those beautiful untested three-band Italian queens for 1913? We have them and know how to rear them; 30 years' experience. We rear queens that make bees that gather us heavy crops of honey, and we will send you the same kind at 75c each; $4.25 for 6; $8.00 per dozen. Safe arrival and satisfaction always guaranteed.
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F. B. Stone, Itaska, N. Y., May 8, 1912.

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FOR SALE.—Water White Alfalfa, Light Amber Alfalfa. Put up in any size packages, any quantity. Write for prices.
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2A3t Brantford, Ont., Canada.

HELP WANTED—Young man who is willing to work, to learn the bee & poultry business. State your experience and wages expected in first letter. No one using liquor or tobacco need apply.
E. L. Lane, Trumansburg, N. Y.

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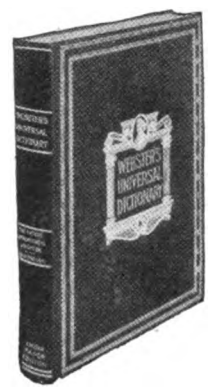

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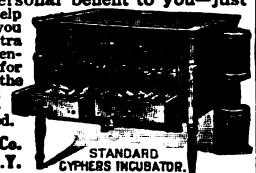

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American Bee Journal

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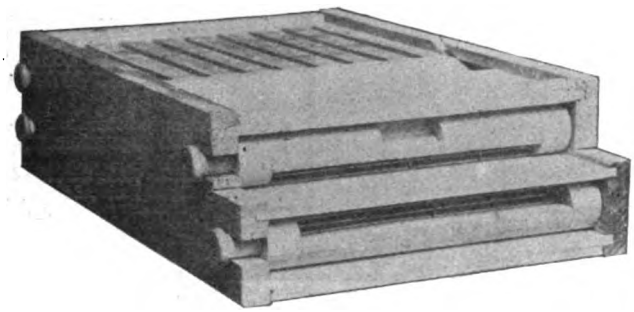

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Feeding
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Proper Ventilation for Honey Flow.

PRICES: $2.00 F. O. B. LIVERPOOL, FOR 8 FRAME SIZE.
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Queens That "Are Better"— Italians & Banats

Untested Queens, 75c each; $8.00 per doz.: two or more doz. in one order, $7.50 per doz.
Tested Queens, $1.25 each: $12.00 per dozen.
Breeder Queens, 3.00 each. Foreign trade add 5c each extra.
½ lb Packages of Bees after May 1st, $2.00. Select queen wanted and add to this. The express charges on these will be very small in comparison with charges on frame nuclei.
One-frame Nuclei with Untested Queen, $2.00 each; 2-fr., $3.00; 3-fr,. $4.00. Full Colony of Bees in 10-frame hive, $7.00 Add 50c if Tested Queen is wanted: $2.00 if Breeder Queen is wanted. For 10 or more Colonies or Nuclei, deduct 25c each. Write if interested in carload lots.
I have successfully shipped Bees and Queens from this place every month of the year.
"Two colonies of bees invoiced by you on Jan. 29 to Matsutaro Sarada, Kobe, arrived safely on March 23, and are satisfactory.
March 31, 1912 Masami Yoshimura, Ogaki, Japan"
Each Colony contained a fine Breeding Queen.
My Bee and Queen Exhibits at the State Fair of Texas were awarded six premiums in 1911. Italians were also awarded First Prize at The Cotton Palace, in Waco, Texas.
"YOUR MONEY'S WORTH" is my motto. TERMS are Cash with order. I refer you to Sabinal National Bank or any business firm in Sabinal.
have seven yards, and with several hundred nuclei, I can serve many customers. I solicit your trade.

J. A. Simmons, Uvalde Co. Apiaries, Sabinal, Texas

50,000 Copies "Honey as a Health-Food" To Help Increase the Demand for Honey

We have had printed an edition of over 50,000 copies of the 16-page pamphlet on Honey as a Health-Food." It is envelope size, and just the thing to create a local demand for honey.

The first part of it contains a short article on "Honey as Food," written by Dr. C. C. Miller. It tells where to keep honey, how to liquefy it, etc. The last is devoted to "Honey Cooking Recipes" and "Remedies Using Honey." It should be widely circulated by those selling honey. The more the people are educated on the value and uses of honey as a food, the more honey they will buy.

Prices, prepaid—Sample copy for a 2-cent stamp: 50 copies for 90 cents; 100 copies for $1.50; 250 copies for $3.00; 500 for $5.00; or 1000 for $9.00. Your business card printed free at the bottom of front page on all orders for 100 or more copies.

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FOR SALE.—The 3-band queens are of the A. I. Root Co.'s improved long-tongued bees which have proven themselves to be the best of honey-producers. The Goldens are good bees bred for beauty. I use the Doolittle and Miller plans for queen-cells. One untested queen, 75 cts.; 12, $7.50; 25, $13.50; 50, $25.00; 100, $45. Will be ready by April 1, or sooner. Double this price for tested queens to be sent the first of June One lb. of bees, $1.00, with the price of queen added: 2 lbs., $1.75, with pirce of queen added. One-frame nuclei, $1.50; 2-frame, $2.50; 3-frame, $3.50. To each nucleus add the price of queen. No personal checks accepted. All queens arriving dead will be replaced. 1Atf

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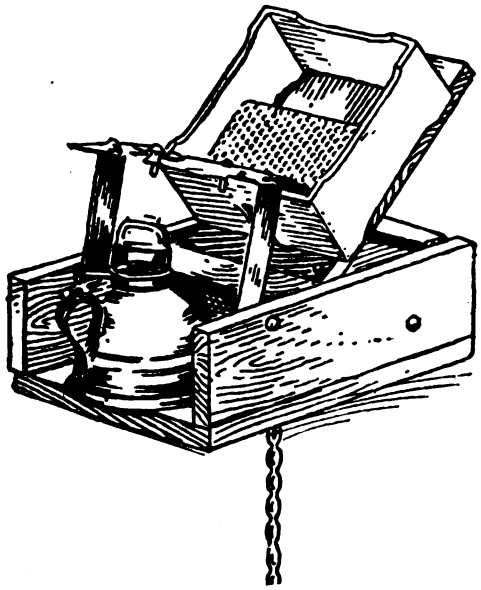
American Bee Journal



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"Falcon" bee-supplies ready for immediate shipment. Better take advantage of the 2 per cent discount that we are allowing this month.

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Where the good bee-hives come from

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Say. friend Tyrrell, you have besieged me with letters and cards from the request you made to your readers on page 479. Well, I never saw or heard of such a flood of mail. I never had any idea that you had so many subscribers before, and, too, many of them write the best letters I believe I ever received. Well, it just did me good to look them over, and I wish you could have been here and gone over them with me.

And now I want to thank you for what you said, and I assure you that as soon as possible I will return the favor, not only to you, but your many interesting readers who have written so many good and cheering letters to me. I declare I don't know just how to express myself over the matter, but I must feel something like a great "big hearted" fellow feels at a good old-fashioned hand-shaking at the close of a good meeting, when the good spirit is at its ebb.

J. J. WILDER.

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Beginners' Department now established in the Review, with four contributors to tell what to do each month, no matter where you live.

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Ralph Waldo Emerson Did

He said you can attain to royalty by loving sweets.

"He who knows what SWEETS
.... are in the ground, the waters,
the plants, the heavens, and how
to come at these enchantments, is
the rich and royal man."

"HOW to come at these?" Aye, there's the rub.

How many people miss them! and perhaps some of these many, strange to say, *keep bees*. Want to know how? Send $1.00 for a year's subscription to

The Guide to Nature

Arcadia: Sound Beach, Conn.

It is edited by Edward F. Bigelow, a sweets extractor—in other words, "a bee-man" and a naturalist.

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They are the Finest in the Land—None Better.

Our Prices will make you smile. We want to mail OUR BEE-SUPPLY CATALOG to every bee-keeper in the land. It is FREE. Ask for it.

H. S. Duby. St. Anne, Ill., carries a full line of Our Goods, and sells them at our regular catalog prices.

AUG. LOTZ & CO.

Boyd, Wis.

Please mention Am. Bee Journal when writing.

W.H.Laws

Will be ready to take care of your queen orders, whether large or small, the coming season. Twenty-five years of careful breeding brings Laws' queens above the usual standard; better let us book your orders now.

Tested queens in March; untested, after April 1st. About 50 first-class breeding-queens ready at any date.

PRICES: Tested, $1.25; 5 for $5.00; Breeders, each $5.00. Address

W. H. Laws, Beeville, Texas.

English Honey-Spoon.

This fine 90c Honey-Spoon and the American Bee Journal for one year—both for only $1.75. Send all orders to the American Bee Journal, Hamilton, I

American Bee Journal

HONEY AND BEESWAX

CINCINNATI, Jan. 20.—The demand for honey at the present time is rather quiet, and we do not look for a change until about the middle of next month. However, we quote fancy double-decker comb honey at $3.75 to $4.00 a case; fancy extracted honey in 60-pound cans at 9@10c a pound; and amber extracted honey in barrels at from 5½@8c per pound, according to the quality and quantity purchased. The above are our selling prices, not what we are paying. For strictly choice bright yellow beeswax we are paying from 28 to 30 cents a pound, delivered here. THE FRED W. MUTH CO.

NEW YORK, Jan. 20.—Comb honey is fairly well cleaned up, some little lots are still arriving, but not of any large size. The demand is fair at unchanged prices. The market on extracted honey is decidedly dull. The high prices this season for fancy stocks, such as white clover and California sage have lessened the demand to quite some extent, and some companies have quit packing all together. While the supplies are not large of the above named, they are sufficient to meet the demand at prices ruling same as were furnished last. West India honey is weakened considerably, and is selling now at around 73@76c per gallon, according to quality. Beeswax is quiet at 30@31c.
HILDRETH & SEGELKEN.

SAN FRANCISCO, Jan. 20.—The demand for comb honey has not been so marked, although plenty has been offered, and the prices are as follows: Fancy No. 1, 15@16c; No. 2, 13½@14½c; dark comb, 11@12c; water-white extracted, 8@8½c; light amber, 7½@8c per lb; amber, 6@7½c; lower grades, 5@6c Beeswax, 27@30c for nice yellow wax, and 23@26c for dark. JOHN C. FROHLIGER.

INDIANAPOLIS, Jan. 20.—White comb sells at 18c in 10-case lots; No. 1 white, one cent less. Amber comb in slow demand, and at lower figures. Best extracted sells at 11@12c in 5-gallon cans. Comb honey seems to be in excessive demand, and very little is now being offered by producers. Beeswax is in good demand, and producers are being paid 30c per pound. WALTER S. POUDER.

BOSTON, Jan. 21.—Fancy white comb honey, 16@17 per lb.; No. 1, 15@16c. Fancy white extracted, 10@11c; light amber, 9@10c; amber, 8@9c. Beeswax, 30c. BLAKE-LEE CO.

CHICAGO, Jan. 20.—This past week has shown renewed activity in the honey market, and while the supply is ample the prices are fairly well maintained. The best grades of white comb honey bring 16@17c per pound, with a shading of 1@3c per pound on the lower grades, according to quality and color. Extracted clover and basswood ranges from 9@10c per pound, with other grades and kinds at about 8c per pound. Beeswax steady at from 30@32c per pound, according to color and cleanliness.
R. A. BURNETT & CO.

KANSAS CITY, MO., Jan. 20.—The demand for both comb and extracted honey is still light, with light receipts. Supply good. We quote as follows: No. 1 white comb, 24 section cases, $3.10 to $3.25; No. 2, $2.75 to $3.00. No. 1 amber, 3.00; No. 2, 2.75. Extracted, white, per pound, 8@8½c; amber, 7@8c. Beeswax, per pound, 25@28c.
C. C. CLEMONS PRODUCE CO.

LOS ANGELES, Jan. 15.—Since our last report was submitted there has been a little more inquiry for honey, but the demand has been so light for some time that holders have been willing to sell at current prices. It is very evident, however, that there is not stock enough on hand to supply the demand until the new crop comes in, and we look for a strong market from now on.

We judge that the California output of extracted honey has been about 150 carloads of 15 tons each, and of comb about 7 carloads. These figures are less than half of those for a normal crop. We quote the present market as follows: Light amber sage, 6¼@6½c; light amber alfalfa, 6¼@6¼c; white to water-white alfalfa about 7c. All f. o. b. Coast, $1.10 freight rate by rail. Light amber sage, 6¾@6½c; f. o. b. steamer, San Diego, with 60c freight rate. HAMILTON & MENDERSON.

DENVER, Jan. 18.—We quote comb honey in a jobbing way at the following figures: No. 1, $3.05; choice, $2.90; No. 2, $2.70 Extracted honey, white, 9c; light amber, 8c; strained, 6¾@7c. We pay 26c in cash and 28c in trade for clean yellow beeswax delivered here.
THE COLO. HONEY-PRODUCERS ASS'N.
F. Rauchfuss, *Mgr.*

CINCINNATI, Jan. 17.—The demand for comb and extracted honey is light, with a good supply. No. 1 white comb honey sells in large lots at $3.60 per case of 24 sections. There is no demand for off grades. White extracted honey in 60-pound cans is selling from 9½@10c; light amber in barrels 7@7½c; in 60-pound cans, 8@8½c. Beeswax in fair demand sells at $33 per hundred.
The above are our selling prices, not what we are paying. C. H. W. WEBER & CO.

SUPERIOR BEE-SUPPLIES
Specially made for Western bee-keepers by G. B. Lewis Co. Sold by
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DENVER, COLO.

This is The Time to Buy
Root's Bee Supplies

Next season promises a bumper crop for bee-keepers. Besides the actual cash saving there is considerable advantage in getting your season's supplies early. Orders reaching us during the next few weeks can have special attention given to particular items. You get the goods early and can put them up at your leisure at odd moments thereby saving the expense of extra help.

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For cash with orders we offer two percent in February.

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Root's goods may be secured from most of the large distributing centers. Complete stocks are always on hand at our branch offices and our jobbers aim to carry as large a line as possible to serve bee-keepers in their territory promptly. Any special items not in stock will be ordered from the factory to come in carload shipments.

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The well known quality of Root's goods hardly needs mention here. We are not content with making supplies "good enough." They must be just right and a little better than necessary to answer the requirements of our standard. Hives, frames, and sections are uniformly acurately cut and finely finished. From the machine shop to the packing and shipping room every detail is carefully cared for to ensure the entire satisfaction of every customer. Extractors, smokers, honey-knives, veils, gloves, honey-tanks, every thing used in the smallest yard or the largest apiary is here ready for your use. Honey labels, letter heads cards, etc., used by bee keepers made to your order promptly. Special catalog for these on request.

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American Bee Journal

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Standard hives with latest improvements, Danzenbaker Hives, Sections, Foundation, Extractors, Smokers; in fact, everything used about the bees. My equipment, my stock of goods, the quality of my goods and my shipping facilities can not be excelled.

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Prices, $30 to $35. Send $5.00 down and we will send the machine. **GREAT OPPORTUNITY.** Address.

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Perfect sections from young, white, kiln dried basswood. White Pine Hives and Supers, Excellent Shipping-Cases, Brood-Frames, Separators, etc.

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Show this wholly visible typewriter to your friends and let them see wherein it excells any $100 Typewriter made, if we would send one to you Free of One Cent of Cost for you to keep forever as your own? Then on a postal card, or or in a letter to us, simply say: Mail particulars.

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The Best Time

To Buy Supplies

THE season just past has demonstrated more clearly than ever the necessity for being prepared for a honey-flow BEFORE it comes. If you wait until the season is upon you, the chances are that the greater part of the crop will be lost while you are impatiently waiting for supplies to arrive. It may seem a little early now to think of next season's honey harvest; but the fact of the matter is, this is just the time to order goods for next season.

We are beginning now to replenish our stocks. We shall have carload orders coming from the factory very often for the next few weeks. Special orders placed now can have just the attention they need, both here and at the factory, and you may have your goods sent in one of our cars, thereby saving on transportation charges. Regular stock will come straight to you from our warehouse in unbroken packages, and you can put the goods together in your odd minutes, thereby saving the expense of extra help in the spring.

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AMERICAN BEE JOURNAL

MARCH 1913

22,138

Recovering a Lost Swarm in Iowa

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PUBLISHED MONTHLY BY
American Bee Journal
1st Nat'l Bank Bldg. Hamilton, Illinois

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bred in separate yards, ready March 20. Untested, one, $1; six, $5; 12, $9; 25, $17.50; 50, $34; 100, $65. Tested, one, $1.50; six, $8; 12, $15. Breeders of either strain, $5. Nuclei with untested queen, one-frame $2.50; six one-frame, $15; two-frame $3.50; six two-frame $20.40; nuclei with tested queen, one-frame, $3.00; six one-frame, $17.40; two-frame, $4; six two-frame $23.40. Our Queens and Drones are all reared from the best select queens, which should be so with drones as well as queens. No disease of any kind in this country. Safe arrival, satisfaction, and prompt service guaranteed.

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Tested Queens, $1.25 each: $12.00 per dozen.
Breeder Queens, 3.00 each. Foreign trade add 5c each extra.

½ lb Packages of Bees after May 1st, $2.00. Select queen wanted and add to this. The express charges on these will be very small in comparison with charges on frame nuclei

One-frame Nuclei with Untested Queen, $2.00 each; 2-fr., $3.00; 3-fr., $4.00. Full Colony of Bees in 10-frame hive, $7.00 Add 50c if Tested Queen is wanted: $2.00 if Breeder Queen is wanted. For 10 or more Colonies or Nuclei, deduct 25c each. Write if interested in carload lots

I have successfully shipped Bees and Queens from this place every month of the year.

" Two colonies of bees invoiced by you on Jan. 29 to Matsutaro Sarada, Kobe, arrived safely on March 23, and are satisfactory.
March 31, 1912 Masami Yoshimura, Ogaki, Japan "

Each Colony contained a fine Breeding Queen.

My Bee and Queen Exhibits at the State Fair of Texas were awarded six premiums in 1911. Italians were also awarded First Prize at The Cotton Palace, in Waco, Texas.

' YOUR MONEY'S WORTH " is my motto. TERMS are Cash with order. I refer you to Sabinal National Bank or any business firm in Sabinal.

have seven yards, and with several hundred nuclei, I can serve many customers. I solicit your trade.

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We manufacture Millions of **Sections** every year that are as good as the best. **The CHEAPEST** for the Quality; **BEST** for the Price. If you buy them once, you will buy again.

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2 Copies "Honey-Money Stories," at 25c	.50
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"Pearce Method of Bee-Keeping"	.50
"Hand's 20th Century Bee-Keeping"	.50
20 Copies "Honey as a Health-Food"	.30
Total	$4.00

All the Above List for Only $2

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This is the title of a 16-page circular, 3½x6 inches in size, gotten up for selling honey. It contains an article on why honey should be eaten, which gives much valuable information on honey. It also has many recipes for the use of honey, both as a food and as a remedy. It ought to be distributed freely among honey-customers. The prices are as follows:

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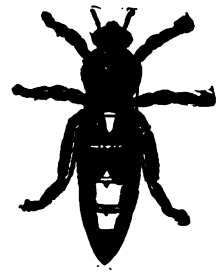

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Darlington, Wis., July 31, 1912. C. R. BRIDGMAN.

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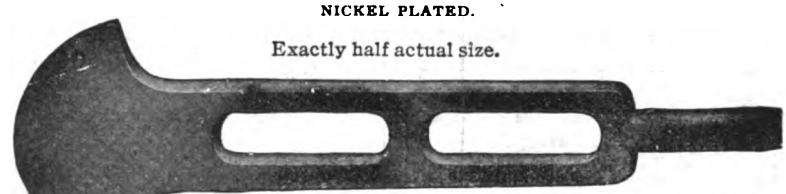

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This is a special tool invented by a Minnesota bee-keeper, adapted for prying up supers, and for general hive and other work around the apiary. Made of malleable iron, 8½ inches long. The middle part is 1 1-16 inches wide, and 7-32 thick. The smaller end is 1⅞ inches long, ½ inch wide, and 7-32 thick, ending like a screwdriver. The larger end is wedge-shaped, having a fairly sharp, semi-circular edge, making it almost perfect for prying up hive-covers, supers, etc., as it does not mar the wood. Dr. C. C. Miller, who has used this tool since 1903, says: "I think as much of the tool as ever."

American Bee Journal, Hamilton, Illinois.

American Bee Journal

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Universal Exposition, St. Louis, HIGHEST AWARD.

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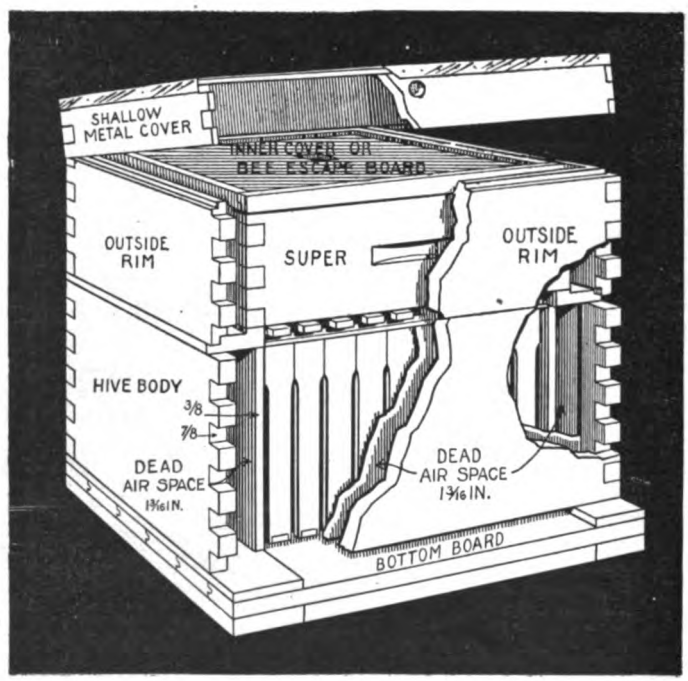

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AMERICAN BEE JOURNAL

(Entered as second-class matter at the Post-Office at Hamilton, Ill., under Act of March 3, 1879.)

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C. P. DADANT, Editor.
DR. C. C. MILLER, Associate Editor.

HAMILTON, ILL., MARCH, 1913 **Vol. LIII.—No. 3**

EDITORIAL COMMENTS

Cross Yellow Bees

The Editor of Gleanings in Bee Culture, in Jan. 15 number, comments upon the statement that very yellow bees are often cross. Italian bees, when pure, are especially gentle. All imported Italian bees are. The breeding for color ought not to destroy that quality. Is it not possible that those cross strains come from a mixture of the Cyprian bees, which were bred so plentifully years ago on account of their bright copper-colored bands and shield? We gave them a full trial ourselves, and have since carefully eliminated them. But why breed for color in any case? It is true, yellow bees sell best. But prolificness and activity ought to be the qualities selected above all others.

Do Bees Dislike Black?

Mr. John H. Lovell writes very interestingly in Gleanings in Bee Culture on this subject, and gives good evidence that bees do not dislike black, but that it is more readily noticed by them than other colors. Hence, they will sting a black hat more readily than a light-colored one. They will certainly sting a dark woolen hat or felt hat more than a straw hat. The latter is made of vegetable fiber, to which they are accustomed, and which they mistrust less than the wool, hair or felt of animals.

Black shows rarely in the fields above the soil. When looking for an enemy, they would be sure to mistrust anything of that color.

On the other hand, the trunk of a tree, a cluster of their own sisters are of a dark color. Attention has been called, in the "Langstroth-Revised Hive and Honey-Bee," paragraph 417, to the fact that a swarm may often be induced to settle on a dark mullen stalk or a piece of black cloth, tied to a pole in full view of the apiary. We have personal knowledge of the value of this suggestion.

Where is the farmer boy who does not know that the bumble-bees of a destroyed nest will rush into the dark mouth of an empty jug if it is placed at the spot occupied by their nest immediately after destroying it? Has the black hole a fascination for them, or do they expect to find the enemy within?

Foul Brood in Iowa

A letter received from Mr. Frank C. Pellett encloses his report to the Governor of Iowa as inspector for 1912. It shows the disease in 34 counties. Mr. Pellett states that the bill, which carried an appropriation for inspection for 1913, was killed in committee, but that a slightly different bill will at once be introduced. It is said that lack of interest on the part of the bee-keepers is the cause of failure of the first bill. Each bee-keeper should take an interest in the matter and write to his representative and senator about it.

One of the most sanguine bee-keepers of the State, Mr. A. B. Tackaberry, of Cantril, writes:

"The Bee Journal should urge the bee-keepers to write to representatives, demanding their support. Iowa is a sister State, and you should be interested in its success."

The American Bee Journal has offered to help in every way, but the Iowa bee-keepers must lead the fight. Join hands, friends, and you may yet win this season. Write to your men that they must support the bee-disease bill.

Death of Grandmother Wilson

We realize now a little more than we ever did before what is meant by "The Vacant Chair." For more than 14 years our home has been brightened by the presence of Grandmother Wilson. January 24, after being up through the day, she went to bed at her usual

MRS. MARGARET WILSON.

bedtime, and at 10 o'clock she very suddenly breathed her last without a pang or struggle. She lacked 22 days of having rounded out 94 years. Her beautiful life was an inspiration to us all, and fragrant memories are left.

C. C. M.

We know that the above lines will

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appeal to the sympathy of every one of the subscribers, hence we publish them just as received from Dr. Miller in a private letter.

Mrs. Wilson gave the example of a quiet ending because of a frugal, peaceful life. A good example for us all.

Margaret Pringle was born in Perwickshire, Scotland, Feb. 15, 1819. With her father's family she came to America in girlhood, and to Kentucky in June, 1838. In the fall of 1841, the family moved to Jo Daviess Co., Ill., where, July 29, 1842, she was married to John Wilson, who preceded her to the better land by nearly 24 years. In 1844, she settled with her husband on the Wilson farm north of Marengo, where she lived until 1898. The last 14 years of her life were spent at the home of her eldest daughter, Mrs. C. C. Miller.

Mrs. Wilson was the mother of eight children, five of whom are now living. Mrs. Sidney J. Miller, Mary E. Wilson, Emma M. Wilson, and John F. Wilson, of Marengo; and Mrs. Annie Stull, of Los Angeles, Calif. She also reared one step-daughter, Eliza Wilson, who became the wife of Rev. J. N. Hutchinson. Her living grandchildren number twelve, with one great grandchild.

Effects of Feeding Sugar

When a year of failure comes and the bee-keeper finds the brood-chambers of his colonies empty of stores in the fall, with no honey on hand to feed them, it is no small convenience, to put it mildly, that he may resort to sugar as a safe substitute for winter stores In some localities the bees have filled their brood-chamber with a sort of honey-dew that is practically poison for winter stores, and then what a blessing it is that the unwholesome stores may be extracted and sugar syrup supplied in their place! The American bee-keeper may congratulate himself upon the low price at which he can obtain the best granulated sugar. Pages upon pages in European bee journals are occupied with discussions as to getting sugar duty free for the purpose of feeding bees, either having a law allowing each bee-keeper to receive free of duty so many pounds of sugar for each colony, or else having denatured sugar at a low price. The . American bee-keeper has no worry over anything of this kind so long as he can get all the sugar he wants at not far from 5 cents a pound.

But the indiscriminate feeding of sugar is not without its dangers. The man who feeds sugar at a time when it will be stored in the surplus compartment is doing a dishonest thing, that is especially reprehensible because of the general discredit it brings upon all honey. Nor is the feeding at other times always without danger. It has been found that when the brood-chamber has been unusually well stored with dark honey in the fall, and a good portion of it left over at the time of the opening of the white honey harvest, some of the dark honey would be found in the supers, having been carried there to make room for the queen in the lower story. Of course, there would be the same danger that sugar syrup would be carried up under the same circumstances.

Replacing Honey with Sugar.—But sugar is not always fed as a matter of necessity. When honey can be sold at 10 cents a pound and sugar can be bought for half that price, it seems an attractive proposition to empty the honey out of the brood-chamber and replace it with sugar syrup. Suppose we figure a little. Here is a colony in the fall with its store of honey all ready for winter. Let us extract from it 30 pounds of honey and feed back in its place 30 pounds of sugar syrup, 5 pounds of sugar to 2 pounds of water. In 30 pounds of such syrup there will be 21.4 pounds of sugar. We will now have:

30 lbs. of honey at 10c	$3.00
21.4 lbs. of sugar at 5c	1.07
Profit	$1.93

If we have an apiary of 100 colonies, that would give us $193 pay for the extracting and feeding, which might all be done in a week. Even if it would take 2 weeks, or 12 days, we would have $16 a day for our trouble. Looks good, doesn't it?

But there are things that will cause some shading down of these figures. Time and again it has been shown that when 30 pounds of syrup are fed it means an addition of considerably less than 30 pounds to the stores of the colony. Just why or how this loss occurs does not now concern us; the fact of such loss does concern us, and that fact is well established. Lately, in a German bee journal, a bee-keeper of 30 years' experience reported that during that time he had had 100 colonies or more nearly all the time, and had fed thousands of pounds of sugar for wintering. The bees wintered well, but he had not failed to notice that a colony heavy with such stores the first of October would be very greatly reduced in weight two months later, while colonies which had not been thus fed, but had gathered their own stores of honey, showed no appreciable diminution of weight at the same time.

An item in the loss is the probable transformation of some of the syrup into wax. Whenever we feed bees plentifully and rapidly, they show a tendency to produce wax, and often whiten their combs with new wax, even though there is but little need of it. There are those who claim that wax costs only two pounds of syrup or honey for each pound of wax, but there are also records of this sort of feeding requiring some 20 pounds of honey for each pound of wax. Putting it between the two, for an average, the wax produced under such circumstances is certainly not a profitable investment.

Effect on the Bees.—There is another phase of the subject vastly more important, that may have resulted in heavy loss which the average bee-keeper has attributed to anything else rather than the feeding of sugar. When sugar is fed, the cane sugar must be changed to inverted sugar, and that change costs something to the bee, and a loss to the bee is a loss to the bee-keeper. Another item, however, greatly overshadows this. In a late number of Schweizerische Bienenzeitung, Dr. U. Kramer has especially emphasized it. Analysis showed that in the winter stores of sugar syrup, albumen was contained to the amount of 28 hundredths of one percent in the unsealed cells and 36 hundredths of one percent in the sealed cells, or much the same as in pure honey. Now, where did this albumen come from? Not from the sugar, but *from the body of the bee itself*. This, of course, causes wear and tear to the bee, and unless this nitrogenous material is promptly supplied to the bee, the wear and tear becomes very serious indeed. Dr. Kramer considers it clearly shown that the bees will be weakened thus by the feeding of sugar if large quantities be fed too rapidly, or if the feeding be done during continuously bad weather when the bees cannot secure pollen, or so late in the season that pollen is no longer to be had. He points out that this explains why it is that bees are so eager for pollen when sugar is fed, and why it is that a fine store of pollen will disappear without any starting of brood-rearing, and also why in spring a colony becomes rapidly decimated with continuous feeding of sugar with no pollen available to replace the nitrogenous material.

Taking all these things into account it will be seen that the bee-keeper who figured on a profit of $1.93 may in some cases sustain a loss to that amount through the replacing of honey with syrup of sugar, as a result of the reduced forces that will be ready to enter upon the expected harvest.

There are some, and they are wise,

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who consider it best to feed sugar only as a last resort to prevent starvation, and who plan ahead to have on hand sealed frames of honey to meet any emergency, so that the last resort rarely or never happens.

Ventilation of the Hive

We call the reader's attention to the contribution on the above subject, in this number, by Mr. Hopkins, of New Zealand, in answer to Mr. D. M. Macdonald, of Scotland.

A courteous discussion between two men as capable as these cannot fail to be interesting and to bring out some valuable points. Though not wishing to take sides, we ought to state a few facts connected with this matter.

The contestants do not refer to the same conditions in their experiments, Mr. Hopkins lives in a warm country, 37 degrees south of the equator, and made his experiments during the summer. The other, Mr. Macdonald, lives in the north of Scotland, on the coast close to the North Sea, and near the 58th degree of latitude north, which is at the same degree as Sitka, Alaska or the southern part of Hudson Bay. Although the British Isles have a much more temperate winter than the same latitude on the American continent, yet it is clear that wintering bees must be a problem there, very much as it is in the northern United States or Canada, while wintering bees in Auckland, N. Z., is probably less difficult than in Richmond, Cairo, or Wichita.

So much for differences in conditions and observations. We also wish to recall an experience of ours, already stated in these columns some years ago, but which will bear repeating.

The winter of 1884–5 was one of the longest and hardest that we have ever known. At that time we had no faith in moisture absorbents. But we tried to make our bees as warm as possible by sheltering them on all sides but the front, which remained open. The upper story was filled with dry forest leaves, but the ceiling of the brood-chamber remained, as in summer, an oilcloth thoroughly gummed with propolis and water-proof. However, some of these gummed cloths had been damaged by the bees and were perforated. This circumstance resulted in giving us an unexpected lesson.

The bees were confined to the hive for months, the temperature in January going as low as —20 degrees Fahr. (—29 C.) week after week, when the finest sunshine could not raise the degree above 10 (—12 C.)

On opening the hives, in the first days of warm weather, we found many of the colonies with sealed covers in a pitiable condition, the evaporating moisture having condensed over and around them. Many of them were literally soaked with the thawing ice-water. But the colonies which had openings in the oilcloth were without exception dry in the brood-chamber, the moisture having escaped into the leaves above, which were in many cases soaked with it. This experience was made unexpectedly for us, with some 400 or 500 colonies in five different apiaries, and resulted in our accepting Mr. Langstroth's views which are recorded on pages 351 and 352 of the last edition of our book. We will quote only a few words of the conclusions to which he arrived after the winter of 1855–56:

"*In the coldest parts of our country, if upward absorbents are neglected, no amount of protection that can be given to hives, in the open air, will prevent them from becoming damp and moldy, even if the frost is excluded, unless a large amount of lower ventilation is given.*"

In verification of the last part of this proposition, we have seen populous colonies wintered safely, but with great consumption of honey and loss of bees, in hives which were entirely open at the bottom, with no bottom-board whatever.

In our climate, in a hard winter, if the entrance of the hive is too small, it often becomes clogged with dead bees to such an extent as to practically stop all ventilation.

The Ohio State Convention

As stated in a previous number, the Editor attended the Ohio State Bee-Keepers' convention Jan. 14 and 15, at Columbus. Mild weather greeted us all the way. The contrast of the winter weather this year with that of the previous winter is remarkable. An old friend, now deceased, used to tell us that "intensities balance each other in the world," meaning that anything running to one extreme is sooner or later followed by the opposite extreme.

The attendance was fair, some 40 or 45 bee-keepers being present. The same staff of officers was elected, and we must say that it would be difficult to find anywhere a better chairman or a better secretary than the present incumbents. Mr. Chas. H. W. Weber was elected delegate to the National to represent the State of Ohio.

In the report of the chief inspector, Mr. Shaw, it was shown that there are at least 53 to 54 counties in Ohio infected with American foul brood to a greater or less extent. The suggestion was advanced that the rest of the counties may show foul brood also when closely inspected. As the first work has been done in 1912, it is difficult to report much progress. But the statements made will awaken the attention of the practical bee-keepers and induce them to be vigilant.

The cost of inspection has been between 20 and 24 cents per colony. It is proposed to ask for a $3000 appropriation for this work instead of $2000.

The spraying of fruit trees while in bloom was much discussed. There, as in many other States, the large orchardist excuses himself for spraying during bloom, under the plea that he has to begin early if he wishes to spray his entire orchard in time. They do not claim that spraying during bloom is harmless, but that it is more harmful to the fruit to delay until after the entire fall of the petals. The convention passed a resolution to appoint a committee to take up this matter and introduce a bill in the Legislature to forbid spraying during the bloom of the trees.

A very interesting address was given by Mr. E. R. Root on different subjects pertaining to apiary management. Among other statements, he said that honey which is pumped from one vessel to another, after the crop, granulates more readily than that which is exposed but little to the air. This reminded us that the granulation of the famous Narbonne honey, which is of great whiteness, is hastened by stirring and beating. Not only does it granulate faster and more thoroughly, but its granulation is soft and the color of increased whiteness. In this country, where granulation is rather considered a defect, this method would probably not become popular. But there is no doubt that thoroughly granulated honey, of fine grain, is of good quality.

Mr. Tyrrell, Secretary of the National, was present and urged the bee-keepers to unite with the National. Mr. Tyrrell has very winning ways and good arguments. We trust he may succeed in organizing the National on a rational plan.

Bee-keeping, we are told, is getting more and more into the hands of specialists. The present conditions of disease certainly lead in that direction. The careless apiarist will have to become careful or quit. Shiftless bee-culture will no longer do.

A New Bee Journal

The California State Bee-Keepers' Association have decided to publish

American Bee Journal

a bee journal. It will be called the Western Honey Bee, a monthly, and is to be devoted to the interests of the bee-keepers of the West. Many successful bee-keepers live in that part of the country, so that plenty of support for the new bee journal will undoubtedly be found.

The editor-in-chief will probably be Mr. P. C. Chadwick, of Redlands, Calif., assisted by such able western men as J. D. Bixby, L. L. Andrews and Geo. L. Emerson.

We take pleasure in extending our heartiest wishes for success to the new bee journal.

Flower Pollination

Gleanings in Bee Culture contains an interesting article on this subject by John H. Lovell, page 771, Dec. 1, 1912, being a friendly reply to another interesting article by P. F. X. Ryan in Gleanings for Oct. 15. Mr. Ryan objects to the claim that bees are attracted to the flowers by their bright colors, saying that the theory is confronted by many ugly facts. In this direct connection he says: "Lubbock makes an assertion similar to Sprengel's, that the very arrangement of the colors, the circular bands and radiating lines, are all with reference to the visits of insects. Why, then, I ask, is the apple blossom painted on the *back* and not on the front? Here, surely, is an instance of the complete unsatisfactoriness of their contention."

The observant bee-keeper who is not a botanist, would be likely to reply to this, "It may be that the bee does not see that outside red with its nose directly in the flower, but to me that red color is very plainly to be seen when I look at the tree either from a distance or close by. Why may it not be thus seen by the bee?" But Mr. Lovell dees not choose to make such a reply. Instead of that he takes an entirely different tack, and brings out a very interesting point as to color in flowers. He says:

In New England the whole outside of the young blossom of the wood anemone (*Anemone quinquefolia*), which blooms the last of April, when winds are chill and snow still lingers in the ravines, is often colored purplish red. Red coloring may be observed on many other flower-buds, leaf-buds, and on young leaves in early spring. Because a pigment is useful in some instances in rendering flowers conspicuous, it does not follow that in other cases its *role* may not be entirely different. It is believed that red coloration is often beneficial to plants in raising their temperature by converting light rays into heat.

That red coloration does actually raise the temperature can be shown by the following experiment: Place some red leaves, the superficial area of which has been measured, in a small flask of water. In another flask containing an equal quantity of water put a few green leaves with the same extent of surface as the red leaves. Place a thermometer in each flask; close them and set them in the sunlight. After a time the water in the flask containing the red leaves will be found to be 4 degrees C. above the temperature of the water containing the green leaves. The water in the second flask will also be a little warmer than at first, as the green leaves produce some heat. On a cold day in springtime, when the air is near the freezing point, an increase of only 4 degrees C. might be a great benefit to a plant. In the same way red styles may aid the growth of the pollen-tubes.

Mr. Ryan objects to the theory that highly-colored flowers are designed for insects by saying: "Where is there a more highly-colored flower than the poppy? and yet it contributes not one iota of nectar to its insect visitors." To this Mr. Lovell replies that the poppy, like the rose, is a pollen flower, and that bright colors and odors are as valuable to pollen flowers as to nectar flowers.

Mr. Lovell refers the question to the bees themselves. He says: "Let us put the question to Nature. The way to question Nature is by experiment. I repeatedly counted the number of visits made by the honey-bees to clusters of pear blossoms during a given interval of time. In one instance 8 visits were observed in 15 minutes. I now removed all the petals and watched the denuded blossoms for the same length of time. There were either no visits in some cases, or in others only one or two.

Again, during a certain time the number of visits made by honey-bees and bumble-bees to the flowers of the garden squash were counted. The big cup-shaped corollas were then cut off close to the green calyx. The result was the same as with the pear blossoms—the naked flowers received few or no visits.

Like results were shown by experimenting with borage.

The fact that the bees visited the entire blossoms but paid no attention to the denuded ones notwithstanding their nectar was left undisturbed, is conclusive evidence, Mr. Lovell thinks, "that bright-colored petals are an advantage in attracting the visits of bees.'

MISCELLANEOUS NEWS ITEMS

State Inspection in Texas.—We are in receipt, through a friend, of the report of the Texas State Inspector of bees, Wilmon Newell, for the year ending Aug. 31, 1912. It being too lengthy for these columns, we will give but the most important points.

The appropriation of $2500 was expended in the inspection of 31,819 colonies in 10 counties. 283 colonies were found affected with American foul brood. Of these, 230 were treated and the others destroyed. A very gratifying condition is shown of the decrease of the disease in some of the counties inspected since 1911. Uvalde county, in 1911, showed 58 diseased colonies; in 1912, only 3.

The above statements show conclusively that prompt and active measures will eradicate disease where inspection is conducted in a thorough manner. Mr. Newell and his assistants are to be congratulated.

There is no European foul brood, or at least none reported in Texas. This simplifies the work very much. Although Mr. Newell is evidently very thorough, it is probably owing to the absence of this variety, and to the small number of colonies diseased, that the cost of inspection is less per colony than in other States. Texas is doing the job at the right time.

Bees Need Special Attention.—Instead of making the care of bees a part of the general farm work to be shared in by any one or all members of the family, as the passing moment dictates, let some one member—the one who takes the most interest in bees—be made responsible for the profit or the loss from the apiary. This is nothing more or less than beginning organization. With organization, neglect and loss will disappear, and with all the modern improvements above enumerated, at the command of the present day bee-keeper, profit must appear.—*Exchange.*

Kansas Bee-Keepers.—The 10th annual meeting of the Kansas State Bee-Keepers' Association was held in Topeka Feb. 4 and 5.

Talks were given by Prof. George Dean and Prof. S. J. Hunter, both of which were highly appreciated by those present. Dr. G. Bohrer, of Lyons, O. S. Mullin, of Holton, and

American Bee Journal

MR. T. YAWATA IN HIS WELL-KEPT APIARY NEAR OSAKA, JAPAN
One of the pioneer bee-keepers of his country, who, with 20 years' experience, is teaching the mysteries of bee-keeping.

Arthur Small, of Topeka, read a number of articles of interest to bee-keepers.

The following officers were re-elected: President, P. R. Hobble, of Dodge City; Vice-President, Mrs. J. D. Smith, of Troy; Secretary-Treasurer, O. A. Keene, of Topeka.

The next meeting will be held about Feb. 15, 1914.

Worcester County Association of Massachusetts.—A series of meetings is scheduled for the members of this association, one for each spring month—March 8, April 12, May 10 and June 14. A summer field meeting is also planned to be followed by monthly meetings in the fall. A series of meetings of this kind will be of great value, particularly to beginners.

Honey Costly by Mail.—In a recent number of the Spokesman Review, of Spokane, Wash., appears a letter by A. E. Burdick, of Sunnyside, Wash., with the above heading, and we quote:

My first request for honey by parcel post came from A. B. Walker, of Ford, Idaho. Ford is just outside the limits of the second zone, or a little more than 150 miles, and would therefore take the third zone rate, which for 11 pounds is 57 cents. Mr. Ford's request was for 10 pounds. The container would call for an additional pound, which would have to be paid for. The producer would be satisfied to get $1.00 for the 10 pounds of honey, including the container, and in this transaction our dear "Uncle Samuel" is getting by far too much of the consumer's money. I would suggest that the parcel post tariff schedules need revision downward in the interest of both consumer and producer.

Eastern Illinois Meeting.—The meeting at St. Anne, although not very numerously attended, was characterized by active discussions. The wintering problem was taken up by men who have had long experience. The majority give the preference, in outdoor wintering, to apiaries sheltered from high winds, with packing of absorbents in the supers and ample ventilation below. Most of those who spoke use burlap or gunny over the top of the frames, with forest leaves, chaff or warm cushions at the top. The President, Mr. Willis, reported having the best success with his colonies in a shed facing south, the front of which is closed in very cold weather by a hinged front, which is let down in warm days and serves as an alighting board.

In a discussion of foul brood, the universal topic, some one made the suggestion that the carrion or "high meat" odor mentioned in the Bee Journal by Mr. Sladen, might be due to the dying of brood after a comb containing some foul brood has been removed from the hive. Healthy brood, chilled to death, has exactly the smell of carrion, when rotting in a warm temperature. No one present thought that a few cells of European foul brood would give a very pronounced odor.

The large and small hive discussion, which promised so much interest, was not very active, each contestant confining himself to one speech.

The Association was unanimous in favoring active work against foul brood, and Mr. Kildow, the State Inspector, answered a number of questions. As a State appropriation of increased amount is needed, the question of taxation was raised, and the following resolution passed:

WHEREAS, The bee-keepers of Illinois expect increased support from the State Legislature for the inspection of bees, also appropriations for the State Bee-Keepers' Association and for the

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teaching of apiculture in the State College of Agriculture,

Resolved, That the Eastern Illinois Bee-Keepers' Association assembled at St. Anne this 4th day of February, 1913, declare their willingness to see colonies of bees put on the list of taxable property.

That we recommend a special tax of 2 cents per colony to be levied on all colonies of bees living on the 1st day of April, said tax to be employed for the above-named purposes.

The officers elected at this meeting are: President, G. T. Willis; Vice-President. W. F. Oberland; Secretary-Treasurer, H. S. Duby.

Syrup Versus Honey.—An article under the title, "Our Great Sugar Debauch," by Bailey Millard, appeared in the Technical World for January, 1913.

Mr. Millard says that our annual consumption of sugar is 85 pounds per capita, or nearly five times as much as that of the average European.

"The quantity of syrup consumed in cheap city restaurants is incredible. Many a factory girl and department store saleswoman makes her entire luncheon from starchy wheat cakes swimming in "maple cane" or "corn" syrup, and no other dish. Most Americans satisfy their inordinate craving for sweets by the same sort of food at the home breakfast table. This practice is almost unknown in Europe, where they have better digestions than ours.....Out at Rocky Ford, Colo., not long ago they paved a road with molasses, and the experiment proved quite satisfactory, as the surface is free from dust and hard as macadam—surely, a better use for this 'valuable food' than to pave your pancakes thick with it every morning.

"Dr. Herman Partsch, a well-known stomach specialist, declares that the average person eats about three times as much cane sugar as he should. The sugar bowl is banished from the table of his patients, many of whom regain their health by said banishment. For the same product he substitutes dates, figs, prunes and honey."

Massachusetts Bee-Keepers' Meeting.—A Bee-Keepers' Day for the Hampshire, Hampden, Franklin Bee-Keepers' Association will be held March 20, during Farmers' Week in the Entomology Building, Massachusetts Agricultural College, at Amherst. Addresses on "Sacbrood," "Value of bees to agriculture and horticulture," "New methods for bee-keepers," etc., will be given.

Mississippi Valley Magazine. — The Mississippi Valley Magazine, published at Quincy, Ill., contains a mention of the American Bee Journal and a quotation with complimentary comment of what we said, page 9, concerning the spontaneous growth of weeds on the river bed. We wish to retaliate. The Mississippi Valley Magazine is the representative of a growing cause. We wish it as lasting a success as that of the immense valley it represents.

North Texas Meeting.—We have been notified that the North Texas Bee-Keepers' Association meets the first Wednesday and Thursday in April at Greenville. All who are interested are cordially invited to attend. The program has not been completed as this goes to press, but a large and interesting meeting is assured.

Northern Michigan Bee-Keepers' Meeting.—The Northern Michigan branch of the National Bee-Keepers' Association will hold their next annual meeting at Traverse City, Wednesday and Thursday, March 19 and 20. The headquarters and meeting place will be at Hotel Whiting. A good program will be prepared, and we would like to see many new faces as well as the old ones.

IRA D. BARTLETT, *Sec.*

East Jordan, Mich.

Illinois Inspection.—I desire all the bee-keepers in the State of Illinois to send me a postal card, stating whether or not there is any disease in their locality, or if they have any suspicion that any bee-disease exists in their neighborhood. I will place their name on my mailing-list and mail them my second annual report or bulletin which is now in the hands of the printer.

This bulletin should be in the possession of every one who keeps bees, whether for profit or pleasure. Also state if you wish the inspector to visit your neighborhood the coming season.

A. L. KILDOW,

Putnam, Ill. *Chief Inspector.*

Death of W. B. Tegetmeier.—In November last, when in his 97th year, the death occurred in London, England, of W. B. Tegetmeier. At one time he

UNDER THE SHADE OF THE JAPANESE MORNING-GLORY.

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turned his attention to bees, and was the first to use, or at any rate describe (1859) the frame hive in England, unless we include the obsolete type invented by Munn. In 1858 and 1859 his observations on the formation of the cells of the honey-bee were published. Darwin, in "The Origin of Species," records his repetition of Mr. Tegetmeier's experiments in cell production.

A small, anonymous work of 30 pages, written by him, entitled, "Bees, Hives and Honey," was published in 1865.

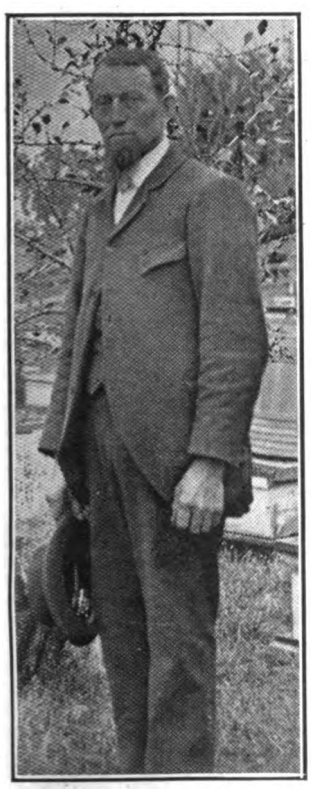
At one time, about 1860, Tegetmeier was secretary of a bee-keeping society, but appears never to have been connected with the British Bee-Keepers' Association. GEO. W. BULLAMORE.

Death of D. H. Coggshall.—The bee-keepers form a closely related brotherhood, and take much interest in one another's affairs. This is the more true of those in the public eye.

Mr. David H. Coggshall, of Groton, N. Y., died suddenly in Sayre, while about to take a connecting train for Florida.

Mr. Coggshall was born Dec. 1, 1847, in Groton, in which township he made his home all his life.

On Feb. 24, 1869, he was married to Clarinda F. Smith, also of Groton.



THE LATE D. H. COGGSHALL.

Three children were born to them, two of whom reached adult years, Mrs. H. J. Blanchard, of Groton, and L. L. Coggshall, of Locke.

It was as an apiarist Mr. Coggshall was best known. He became interested in bee-culture in 1861, when he was given a swarm of bees by his grandfather, William Smith.

He began a series of experiments with them, and was very successful. He branched out in the business, and at one time had about 800 colonies. He was the first producer and shipper of extracted honey in this part of the State.

Mr. Coggshall bought a place in Stuart, Fla., about eight years ago, and had been there every winter since. He took a great deal of pride in the place, and built a house in the center of the three lots which he purchased. The rest of the property he set out to citrus fruit trees and cocoanuts. He also bought another lot adjoining the St. Lucie River, and built a dock and boat house for housing his gasoline launch, which has a capacity of 15 people. Without bees, of course, the place would not have been complete, so he purchased a few colonies, enough to keep his own table and his friends supplied with honey.

Arabian Honey and Wax.—The following is from a report by Consul Walter H. Schulz, Aden, Arabia:

"Arabian honey, which is frequently mentioned by historians as an important export from Aden in early times, is no longer an item in the export trade. Small quantities, however, continue to come from Mokalla, 400 miles east of Aden, and it is also exported from that place to India in small quantities. The decline in the honey and wax industry has been a gradual one for centuries, and is attributed to a diminution in the rainfall. The honey that comes to market in Aden is packed in gourds and goatskins, and sometimes in hollow pumpkins.

"Wax imports and exports are considerable, but include little or none of the Arabian wax, consisting largely of importations from Eritrea and French Somaliland."

BEE-KEEPING FOR WOMEN

Conducted by MISS EMMA M. WILSON, Marengo, Ill.

Winter Work

Mr. Byer says, page 52, "Here in Ontario, during the months of January and February, the bee-keepers do about the same thing as their bees—practically nothing, in so far as real work in the apiary is concerned."

To be sure, Mr. Byer, but isn't there a lot of work not really included under the head of work in the apiary that bee-keepers can profitably do during winter months?

Pretty good plan to clean all supers and hives not in use, and do any repairing that is needed. Make new hives, frames, supers, etc., if any extras will be needed for the coming season. If you use T-tins have them all cleaned, too. It gives one a comfortable feeling to know that everything is shipshape and ready for use at a minute's notice.

In this "locality" we like to have our sections all made, filled with foundation and put into supers, all ready to set on hives when needed. It is not pleasant to put in foundation in very hot weather, when the foundation will crumple down under your fingers. Of course, you can do it if you get up early enough, and use only the early morning hours, but why not have it all done before the weather gets warm, and have a comfortable time doing it?

Now, Mr. Byer, I venture to say there is a whole lot of work you do yourself during these same winter months. You wouldn't be a bee-keeper if you didn't. Own up now, don't you do heaps of planning about the bees while they are quietly taking their winter nap?

The winter is an excellent time to read up on bee-literature, especially to go over the bee journals that received only a hasty reading during the busy season.

[Not only is winter a good time for this, but the rainy days of March and April offer another excellent opportunity.—EDITOR.]

A Lady Bee-Keeper of California

I am sending you a couple views of apiaries, as requested in the Bee Journal. I feel indebted to a lady tourist who subscribed for me, and I ought to *pass it on.* She saw my bees working in February last. I showed them to her, as I would to any other traveler, when I found that she had kept bees 10 years or more (Mrs. J. J. Glessner, of Chicago). She also gave me the book "Fifty Years Among the Bees." There are many who read the Bee Journal in the West.

A HIVE PERCHED ON A PEDESTAL LIKE A SUN DIAL.

The hive on a pedestal looks like a sun dial, and interests our visitors. These bees are in the valley. The

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others in the mountains, 5 miles away, will barely live, as the sage failed on account of the drouth. My 40 years of bee-culture have all been in California, with both pleasant and funny experiences. I read "Forty Years Among the Bees," loaned to me by a bee-

CALIFORNIA BEE-YARD OF MRS. LUCY SEXTON, OF GOLETA, CALIF.

keeper years ago. This book has put me in the best way of bee-keeping.

I will try to organize a club of California women bee-keepers, and will send more views.

(MRS.) LUCY SEXTON.

Goleta, Calif.

Your letter is very welcome, together with those dainty pictures. Your 40 years' service certainly entitles you to rank among the veterans. We will be glad to have further items drawn from your long experience.

Honey Recipes

HONEY-AND-NUT SANDWICHES. — Mix one cupful of honey with two teaspoonfuls of lemon juice, then stir in enough finely chopped nut meats to make a stiff paste. Spread on slices of buttered bread, cut into pieces, place two together and serve.

HONEY CANDY.—One quart of honey, three heaping tablespoonfuls of butter, two tablespoonfuls of vinegar, half a teaspoonful of baking soda, and two teaspoonfuls of lemon extract. Put the honey, butter and vinegar into a saucepan, and boil until the mixture will harden when dropped into cold water; then stir in the baking soda and the lemon extract. Pour into a buttered tin to cool. When half cold mark into squares, and when cold break apart.

HONEY FRUIT CAKE.—Four cupfuls of flour, half a cupful of butter, three-quarters of a cupful of honey, one-third of a cupful of apple jelly, two eggs, one teaspoonful of soda, one teaspoonful of powdered cinnamon, one teaspoonful of grated nutmeg, half a cupful of currants, half a cupful of chopped candied orange peel, a quarter of a cupful of warm water, and a quarter of a teaspoonful of salt. Warm the butter, honey and apple jelly; remove from the fire; add the eggs beaten, then the soda dissolved in the warm water; add the spices, flour and fruit. Turn into a buttered-and-floured tin, and bake until ready.—*Ladies' Home Journal.*

FAR WESTERN BEE-KEEPING

Conducted by WESLEY FOSTER, Boulder, Colo.

Moisture Over the Winter Cluster

The writer examined an apiary of about 100 colonies Feb. 2. The covers were removed and the general conditions noted. About half of the apiary had the Acme tin cover and inner cover which gives a space about 2 inches between the inner cover and tin cover. The holes in the center of the inner covers were closed by a shingle being laid over them or a piece of burlap stuffed into the hole. A few of the colonies had comb-honey supers still on, and these seemed to be drier and the clusters spread out better than some of the others. A burlap cloth placed over the frames, and the tin cover with a 2-inch space kept the bees in driest shape, *unless* part of the burlap extended outside of the cover when it would siphon the moisture into the hive and keep the bees damp. A few flat covers with burlap between cover and frames were also unsatisfactory, as there was considerable moisture and frost around the edges of the interior of the hive.

It is evident that the inner cover with a small hole in the center for the passing off of moisture ladened air is essential. Do not close the hole tight. A burlap cloth in place of the honey-board is good if all edges are kept under the cover.

Several combs of honey were examined. The honey was thick and well ripened. This was an agreeable surprise, as the honey gathered in the locality where this apiary is situated was not of very good quality, owing probably to the wet season. The danger that may come from disturbing bees in winter was shown. A third of this apiary had to be moved, to make room for the erection of a building, when there was considerable snow on the ground and the weather was not warm. These colonies had dead bees scattered throughout their hives, over the top of the frames, in the corners, and almost everywhere. The cluster had been disturbed, the bees scattered, and many, probably a handful in each hive, had chilled before getting back. Those hives in the apiary that were not disturbed, did not show dead bees except a few on the bottom-boards.

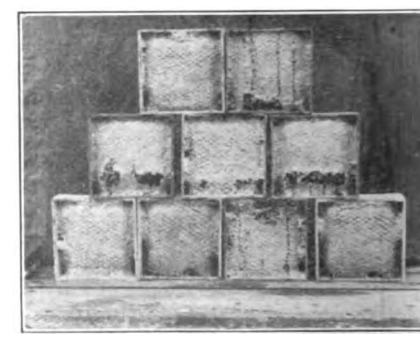
Bee-Keeping on a Demonstration Train

The Colorado Agricultural College Extension Department will operate an agricultural demonstration train covering the larger part of Colorado, beginning Feb. 17 and continuing for one month. Bee-keeping will be represented with an exhibit, and the writer will go as attendant.

Fremont County Bee-Keepers Organize

Bee-keepers met in Canon City a few weeks ago and organized the Fremont County Bee-Keepers' Society, with F. W. Brainard President, and Wm. Babberger Secretary-Treasurer. The association is small, but there are several elements that augur well. Most of the members live within a few miles of Canon City, so they can get together quickly. They have all suffered from fruit-tree spraying — this has driven them together for defense.

Colorado now has four county organizations manifesting a semblance of life, and there are three or four dead ones. But organization among the bee-men for real benefit never was in better shape than at the present time.



THESE SECTIONS AVERAGE ONE POUND. THE LEAKY CELLS WERE BUILT ON A CURLED FOUNDATION STARTER AND FAST TO THE SEPARATORS.

Prospects and Locations

The bee-men are now busy getting supplies ready for the coming season. Prospects are good, and we hope for a favorable season.

A letter just received from a bee-keeper in the Middle States asks about prospects in Colorado, especially the Uncompahgre Valley. It is hard for me to compare Colorado with the Middle States, for I know little about the locality where the gentleman is now located. Bees as a source of income are kept by a large number of people, but money is lost in Colorado bee-keeping about as quickly as anywhere. The Uncompahgre will compare favorably with any of Colorado's valleys. It lies in Montrose and Delta counties principally, and is supplied with an abundance of water—too much in places, as considerable portions of the land is seepy.

Eastern Colorado has better roads, and is more developed than the western part of the State. It has less water available for irrigation, but freight rates are less to and from markets. Land is possibly more productive in western Colorado, and the honey crops have been more uniform, although failures have been experienced on the Western Slope. Bees may be pur-

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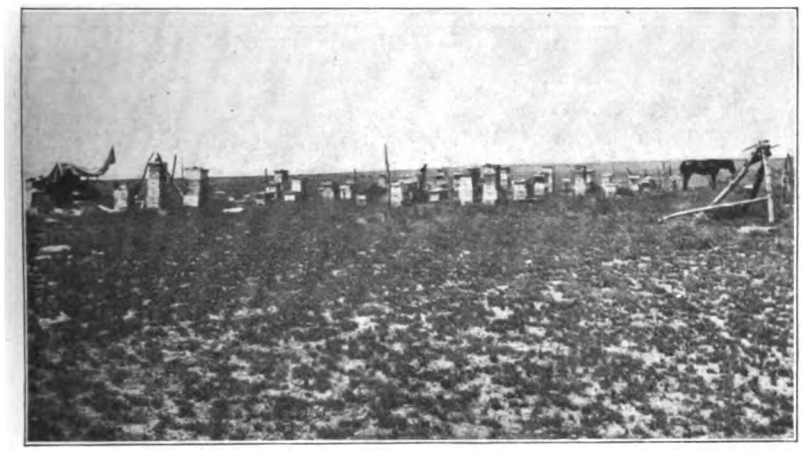
BATCHING TENT AT THE OUT-YARD OF A COLORADO BEE-KEEPER—60-POUND CAN CASES USED FOR CHAIRS AND SUPPORTS FOR THE TABLE.



A TYPICAL PLAINS APIARY OF THE FAR WEST.

chased in many places all over Colorado so that a bee-man could buy cheaper than to move in a large lot. A personal investigation is recommended before a locality is selected.

Alfalfa Weevil Barred

An important amendment to the alfalfa weevil quarantine now in effect in California against Utah, Wyoming and Idaho, to include shipments of nursery stock into California from these States, was authorized today by State Horticulturist Cook. Hereafter no nursery stock from Utah, Idaho or Wyoming will be admitted unless wrapped in excelsior or some material which would not contain the pest, and unless the containers, both boxes and cars are fumigated.

The order was issued to further insure the $50,000,000 alfalfa crop of California from danger from the weevil.

The quarantine now exists against alfalfa hay, seed, bees, bee-hives and nursery stock. It is news to me that the alfalfa weevil pest may be spread by the shipment of bees and bee-hives. Of course, this would apply only to used bee-hives. Is not this a new way of keeping Utah and Idaho bees out of California?—*Orchard and Farm.*

The Colorado Apiary Act

A bill with the following heading is now before the Colorado Legislature:

"House Bill No. 144, 'A Bill for an Act,' to establish a division of apiary inspection and investigation under the State Entomologist; to provide for investigations in bee-culture and the inspection of bees for contagious diseases; to provide for the prevention and spread of bee-diseases; to provide for country apicultural inspectors; to provide for the transfer of bees from box-hives; to provide for the prevention of the poisoning of bees by fruit-tree sprays; to provide penalties for violations of the provisions of this act; to make an appropriation for carrying out this act, and to repeal all acts and parts of acts in conflict with this act."

The latest word from Hon. O. C. Skinner, Speaker of the Colorado House of Representatives, states that this bill, which was referred to the Committee on Agriculture and Irrigation, has been reported out to Committee of the whole with the recommendation that it pass.

[The bill is too lengthy to be inserted whole in the Bee Journal. Mr. Foster can probably furnish copies of it to parties interested.—EDITOR.]

SOUTHERN BEEDOM

Conducted by LOUIS H. SCHOLL, New Braunfels, Tex.

The Need of Pollen in Early Spring

Many of us do not realize the importance of supplying colonies with pollen early in the spring when the bees are not able to obtain it from outside sources. There are various circumstances under which bees are unable to breed up early, but one of the chief reasons is the lack of pollen with which to prepare the larval food. There are summers during which all the stored pollen may have been used in the breeding period, followed by a fall with no pollen yielding bloomers, and the bees go into winter quarters without a sufficient supply of this food material. This may be followed by a cold, long, drawn-out spring, during which the bees are unable to gather any pollen, if there is any to be had.

Many localities are without early pollen yielders even in favorable spring seasons. It is apparent, therefore, that much can be done by the bee-keepers in furthering the progress of their colonies in early spring, so that they may be running over with bees for the honey flow, otherwise they may often struggle under difficulties. When the time of heavy breeding is at hand, ascertain whether the bees have sufficient pollen in store or are able to get it. If not, it should be supplied artificially.

The following letter is from W. R. Cunningham, of Rayville, La.:

"FRIEND SCHOLL: — On Sept. 16, I hived a late swarm, put it into an observatory hive and placed it in one corner of my living room, cutting a hole through the wall so the bees could go in and out. I gave the bees a deep comb with about 4 pounds of honey, with the intention of giving more as they needed it. I noticed on Jan. 11 and 12 that the workers were carrying out a few dead larvæ. The thought came to my mind immediately that I had not supplied them with pollen. I gave the colony a tablespoonful of flour. I had read of Dr. Miller's advice to feed flour as a substitute for pollen.

"To my surprise the bees fairly

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rolled in the flour. In about two hours they had it all stored in the combs, so I gave them another spoonful. Next morning that was also gone, and I gave them three more. The elm began to bloom on the 16th. Since then all my colonies have done their utmost at gathering pollen and breeding up rousing colonies.

"After I learned that this colony in the house was so much in need of pollen, I thought it best to go out and investigate my other colonies. I put a quart cupful of flour near their usual feeding place, and you should have seen those bees scampering over each other and carrying the pollen home. Some of them fairly rolled in the flour, and were as white as could be, and there was a constant stream of bees flying to and from every colony. It only took them part of an afternoon to carry this amount to the hives.

"Now, I believe that if bee-keepers were to feed their bees some substitute for pollen in the early spring or the latter part of the winter, they would have rousing colonies with young bees that would be ready to gather the first honey flow."

[Flour substituted for the missing pollen in early spring is advised by most of our text-books. We usually pack it with the hands, in shallow boxes, located in some sunny, sheltered spot, as soon as the bees are able to fly. But we did not know that such a procedure was advisable as far south as Texas or Louisiana. There is no doubt of the efficiency of this substitute, if nothing else is to be found in natural pollen. Pressing the flour down into small ridges or lumps keeps the bees from drowning in it.—EDITOR.]

Comb or Extracted Honey?

Well do we remember when bee-keepers discussed the matter of producing more extracted honey than comb. Some bee-keepers even went so far as to say that extracted honey would replace comb honey altogether. I have been ridiculed for making bulk comb honey production my specialty. But the production of honey in the extracted form has exceeded the demand for it, and there has been a greater demand for comb honey.

There is always a keen demand for all the bulk comb honey that bee-keepers produce in connection with extracted honey; they have no difficulty in disposing of the former, but it takes them much longer to sell their crop of the latter. I have bought quite a number of lots of extracted honey that the bee-keepers had trouble in selling, although they had disposed of their bulk comb honey early in the season.

We are making a specialty of bulk comb honey, and this may have a tendency to bring us more orders for that kind, but we do not advertise, and in sending out our price lists we quote both comb and extracted honey. Even our letter heads show that we are producers and dealers of both.

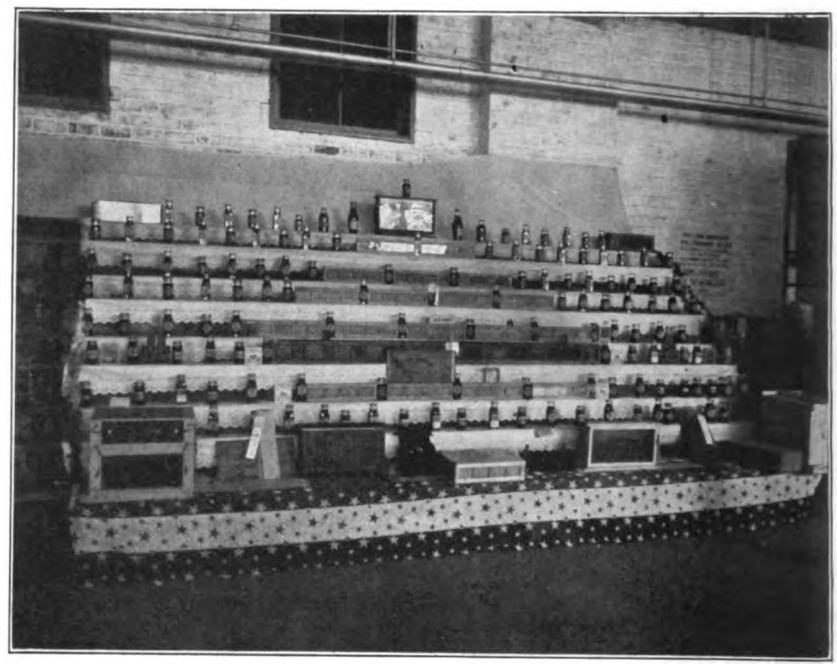
We are not advocating what kind a bee-keeper shall produce. Find out what your market requires. Of course, there are other circumstances that must be taken in consideration. Not all localities are good enough for comb-honey production, since the honey flows may not be strong enough, or the source of honey may not be a suitable one for fancy comb honey. In this case it will be better to produce extracted honey. These differences are felt more where section honey is produced, while it is not so difficult to produce bulk comb honey, with which we have to do here in the South to a greater extent.

A word of caution. It is, as a rule, to the detriment of the apiarist to jump from one thing to another every time something new comes up. It costs money to make rapid changes, and the change may prove an unprofitable one. If it is thought that another method is better, the change should be made gradually. If there is an advantage in a change after a fair trial on a small scale, it is still time to make a more radical change.

Texas Prospects Most Favorable

Up to this time the prospects for a honey crop in the great Lone Star State are most favorable. It is to be regretted that we have planned every year lately for a good old-time honey harvest, and have missed our mark. However, this season begins somewhat differently. The great amount of moisture from the numerous rains that have prevailed over almost the entire State of Texas during last fall and the past winter, makes the outlook better by far than it has been for several years.

The bees seem to be in good shape and well supplied. Sometimes the season begins well, to end without a harvest, but it is hoped that this will not be the case this year.



HONEY AND BEE APPLIANCE EXHIBIT OF LOUIS WERNER, EDWARDSVILLE, ILL., AT THE MADISON COUNTY CENTENNIAL FAIR.—Such exhibits at local Fairs help greatly to educate the public and increase the demand for honey.

CANADIAN BEEDOM

Conducted by J. L. BYER, Mt. Joy, Ontario.

Different Climatic Conditions

Our ideas of the climatic conditions of some other countries are apt to be at variance with reality. For instance, I have always thought that Switzerland had a very mild climate, but judging by what Mr. Anthony Biaggi, of Bellinzona says, some parts of the country at least have quite severe winters.

I ordered a few queens from Mr. Biaggi, and writing me a very interesting letter, he says: "Here on the Italian slope of the great chain of the Alps that bound north Italy, we have a very rigid winter, snow falls in November and remains until March." While nothing is said about the intensity of the cold, it must be fairly continuous or else the snow would not stay so long.

Our weather in Ontario this winter is rather peculiar, for until Feb. 1 it was much milder than the average winter. Since that date until Feb. 11 it has been quite cold, but at no time this winter have we had more than 6 inches of snow, and now we have none at all. How the clover will stand the

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winter remains to be seen, but naturally we would feel safer if it had a good covering of snow.

Transferring Bees

A lady bee-keeper in Florida writes me asking how to transfer bees into modern hives from "gums." Not knowing much as to the nature of the said "gums," I was at a loss to advise what would be the best way. My own experience in transferring bees has been with but a limited number of box-hives, but the following plan is the best for this job I think, and will apply equally well to any kind of a "gum." I think it is useless to advise some complicated plan to a person who has had but little experience with bees, as failure is sure to result, no matter how good the plan may be in the hands of an expert:

If I buy a few box-hives I leave them alone until they are strong enough to get the notion of swarming. If there are no openings in the top of the box, I make some with an auger, or the box may be turned upside down, providing the bottom-board is loose. Place a hive-body full of nice combs over the box-hive, and if it does not fit exactly, a few laths or other thin pieces of wood can be tacked around the sides where the two hives join. In a short time the queen will go above into these combs and start to lay.

Some day, after having prepared the colony in this way, take a queen-excluder, carefully open the top hive and lift up a comb or two to see if the queen is above. If she is on the combs quietly lift up the top hive with the combs in it, and slip the queen-excluder on top of the "gum." Then place the top hive back over the excluder.

All that is necessary now is to leave them alone for 21 days and then take away the lower hive, placing the top one on the stand in its place. All brood will be hatched out of the old box-hive, and the bees can be smoked or driven out and the contents broken up and disposed of as you see fit. There is nothing new in this plan of transferring, but I doubt if there is a better way of transferring when you wish to save time and avoid a tedious job.

The Inspector's Salary

Much has been said in the past relative to the inspection of bees. I am very much in favor of a strict system of inspection, but if we are to have the efficiency necessary for this work, the men who are sent out on inspection must be remunerated better than they are now. That statement from the British Bee Journal, copied in the American Bee Journal, page 43, gives my ideas on the matter so forcibly that I cannot forbear quoting the same again by way of emphasis: "Unless these men have had the practical experience of managing numbers of colonies successfully, they are surely not fit to be sent out to exercise compulsory powers over those of their neighbors; but if they have had such experience they must be worth a great deal more than they get."

It is easy to get men to go out on inspection work, but it is not easy, under present conditions, to get men *properly* qualified. Ontario has some good men at present who are acting as inspectors, but there have been a few who were not qualified for the work. The qualified men are, as a rule, giving their time at a sacrifice, for if able to inspect efficiently, they could make more money devoting the time to their own interests.

I am speaking from experience, for I was at the work 4 years myself. The present allowance is, I believe, the same as when I was at the work, viz., $5.50 per diem, and you pay your own hotel bills—livery and railway bills being paid by the department. This means about $4.00 a day net, and while that may sound like a big figure to some, bear in mind that often a bee-keeper has to go away from home when one day's absence may mean many times $4.00 of loss to him. While I am not a moneyed man, used to getting a big anual return, I could not afford to go on inspection work any more. The job would not tempt me if I were offered considerably more than the present remuneration.

Feeding in the Fall

On page 56 of the American Bee Journal, the Editor writes that J. L Byer says "that in Ontario they feed the bees as much sugar syrup as they will store in the brood-chamber before winter." "They," in this case, means only a small percent of bee-keepers who winter on the summer stands, but the few who practice this plan do not "think" it pays; they *know* it pays. While I know it pays, I have never put all of my colonies in that condition because of the extra work, and *fancied* extra cost. I say, "fancied," as I doubt if we have many seasons when the plan of heavy feeding, for outdoor wintering in a cold climate, will not pay good interest on the money invested, and return the principal the first season.

Mr. McEvoy contracts his hives when using this plan, placing his bees on five or six solid combs. At least one of our most successful men feeds his 10-frame Langstroth colonies all they will take late in September or early in October, and he gets it all into the bees, too, before the clover flow comes in June. But this is a dangerous doctrine to preach, as it would surely lead to overstocking if all practiced it. But no danger of that, too much trouble and too big a bill for feeding to suit the majority, especially as we have an occasional winter when the bees come through fairly well without feeding in the fall.

Carniolan Bees Preferred

At various times in the past *I have* championed the Carniolan bees, and have often wondered at some of the bad reports made in regard to them. I have been forced to the conclusion that, in some cases at least, mixed stock must have been tried instead of a good strain.

In a kindly appreciative letter lately received from a friend in Nebraska, I quote the following. It shows that at least a few appreciate the good qualities of those bees: "I wish to thank you for bringing the Carniolan bees to my attention. They have proved very satisfactory, as they are hardy, winter well, build up rapidly and early in the spring, and cap their honey white. It is a pleasure to handle them, as they are quiet and gentle after having handled a cross colony of Italians."

Wintering on Full Combs

The editor of one of our bee journals writes me: "I am with you on the winter-nest proposition, as I have 127 colonies fed up in the way you advocate—all wintering on the summer stands."

The plan referred to is that of feeding the colony all they will take in the fall (brood-nest can be reduced if desired), so that the bees can go into winter quarters on solid combs. My friend says that he will report in the spring as to how they winter; but I feel pretty sure, even now, as to the nature of the report, and venture to forecast that not a single colony will be the worse for the winter, unless queenlessness or other causes not relating to wintering affect them.

BEE-KEEPING IN DIXIE

Conducted by J. J. WILDER, Cordele, Ga.

Queen and Drone Traps to Control Increase

FRIEND WILDER:—I run my bees for comb honey, and do not wish any more increase. I haven't the time to go over the combs every 5 or 6 days during swarming time to destroy queen-cells. Can I use queen-traps over the entrances to confine the queens to the hives, and when the bees swarm let them go back, and save the swarms and get more honey? Should I kill the queens as I catch them in the traps, or let them go back in the hive?

Jefferson, Ga. W. A. GORDON.

Some years ago I tried traps for keeping down increase, but I was not successful, and I wonder if any one has ever been successful with them for this purpose. The bees will kill the old queen after several efforts to swarm, if she is confined there. When the young queens hatch they swarm again, and may keep it up for some time, if the young queens are confined

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in the hives in the same manner. Very often a small, inferior queen will hatch out and squeeze through the trap and away goes the swarm. Another objection is that young queens cannot get out to mate, and drone-layers and losses are sure to be the result.

If the old queens are killed as they are trapped, and you take out all the queen-cells except one, the bees will start more cells and swarm unless the combs are cleaned of brood. If the combs containing eggs and young larvæ be removed it involves considerable work, and the colony will dwindle down fast. Queen and drone traps are designed to catch queens and drones, or to confine drones to certain hives. They may be placed over the entrances of hives during the absence of the bee-keeper at swarming time, so as to save any swarm that may come out. The traps should be removed on his return.

[We believe Mr. Wilder's view is the correct one. Queen and drone traps will do for confining the swarm *temporarily*, but the killing of the old queen is often the result of keeping the traps on too long.—EDITOR.]

How to Hive Bees

DEAR MR. WILDER:—I want to know your method of hiving bees. I lose many swarms each season because I cannot hive them; or after I hive them they leave. I will appreciate the information you can give me.

Platteville, Ala. JOHN C. THOMAS.

The loss our industry sustains each season from the escape of swarms is something to lament. This great loss is mostly borne by those who are just entering our ranks, and it is the direct cause of much discouragement. No one should try to handle bees without a good bee-veil and smoker. If these are properly used there is no danger from bee-stings. A swarm-catcher is the best thing to hive bees with if used as directed, but a lot of beginners prefer to climb trees after swarms, and have all kinds of sad experience. To such bee-keepers I would suggest that the ready hive be placed on the ground or directly under the swarm of bees if possible. A little earth should be placed in front of the alighting-board, and leveled up to it so the bees can easily march into the hive when they are placed in front of it.—[A cloth or coarse gunny sack will serve the same purpose.—EDITOR.]

A lard can or large tin-pail makes a good vessel to catch a swarm in, as the bees cannot crawl out so easily. If the swarm is low enough to be reached from the ground, bench or table, the can should be held up under the bees as close as possible. Then the swarm is quickly jarred off the limb into the can and dumped in front of the hive. If the bees settle high up on the body or limb of a tree, use a pole of sufficient length and attach the can or pail to it.

It is not necessary to beat pans, ring bells, shoot guns, or make any great noise to settle swarms of bees, nor is it necessary to dampen them after they have settled. To keep them hived after they have marched in is an easy matter. Fasten an entrance guard or queen and drone trap over the entrance of the hive, then the queen cannot escape to go with the swarm, and it will have to return and be content. An entrance guard costs but 15 or 20 cents, and one may be worth from $15 to $20 to you during the season. In two or three days it should be removed, as the bees will then be contented and settled down to work. A swarm of bees should be placed on their permanent stand just as soon as they are hived.

Do Bees Need Salt?—Overdoing It

FRIEND WILDER: — I washed some salty meat some time ago and poured the water on the ground near the apiary, and soon bees were taking it up. I then gave them some salted water, and they seemed to prefer it to fresh water. AUGUSTUS WILLIAMS.

Barwick, Ga.

I do not know that bees require salt, but I don't suppose they would object to a very small amount of it in their drinking water. I have tried to run them away from public watering places a number of times by sprinkling them heavily, but this had no effect. Very often when meat is cured a solution containing considerable sugar is used. Such might have been the case with you, and the bees were after the sugar the water contained.

I remember seeing the "saving power of salt" tried on a swarm, and it did not prove very effective. It was a swarm a distant neighbor hived. As soon as they were in, he raised the cover of the hive and gave them a good salting. He was very anxious for a start in bees, and thought this the way to keep them, but they were soon out on a limb. He sent for me, and on my arrival he expressed his surprise at their deserting the hive. He knew they had been salted enough. On examining the hive I found it nearly half full of salt. He told me his neighbor gave him the instructions to use it, and the more the better. He had carried out the instructions.

ERECTED TO THE MEMORY OF A QUEEN-BEE WHICH WAS ACCIDENTALLY KILLED WHILE INVESTIGATING—THIS MONUMENT STANDS NEAR THE APIARY OF MR. YAWATA.

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CONVENTION PROCEEDINGS

Sidelights on the National Meeting

The meeting at Cincinnati Feb. 12 and 13 was not very largey attended, only about 60 bee-keepers being present. But the meeting was harmonious. Changes were made in the Constitution according to the needs of present conditions. The committees selected to pass on the publication of the Review made some kindly criticisms, but recommended to accept the purchase of the publication. It was very evident every move taken by the Board of Directors was made in good faith and without profit to themselves, and that an honest management is carried on. All are willing to continue on the same footing. So no great opposition was shown by any one of the delegates.

In addition to the changes in the Constitution, which will be published in our next number, we will also publish a new set of honey grading rules as proposed by two committtes appointed by the Board of Directors, a committee of producers and a committee of dealers.

A resolution was passed to ascertain whether the former incorporation of the association is still in force. If it has been outlawed the Secretary is to secure a fresh incorporation, provided the cost is less that $50.

The officers elected are as follows: President, Burton N. Gates, of Massachusetts; vice-president, H. A. Surface, of Pennsylvania; secretary, E. B. Tyrrell, of Michigan; treasurer, C. P. Dadant, of Illinois. Directors for three years, E. D. Townsend, of Michigan, Wilmon Newell of Texas and Wesley Foster, of Colorado; for two years, J. M. Buchanan of Tennessee; F. B. Cavanagh, of Indiana.

An enthusiastic resolution was passed to extend a vote of thanks to the former General Manager, N. E. France, for his devoted and disinterested management in past years and a committee appointed to receive subscriptions for a lasting present to be given him in token of the esteem in which he is held. Although many of the delegates had already left for their homes, subscriptions to the amount of $48 were received in a few minutes and a committee composed of Dadant of Illinois, Cavanagh of Indiana and Allen of Wisconsin, was appointed to handle all subscriptions for this purpose and select a durable present.

Mr. France is very modest and for this reason the committee does not see fit to solicit any one. Those who are in favor of this action will please send their subscriptions to this fund at once to the chairman of the committee C. P. Dadant, Hamilton, Ill. A list of the subscription and the use to which it will be put, will be sent on request to any one of the subscribers.

A very decided expression was given to the advisability of holding at least one meeting a year in which only bee-keeping subjects will be discussed, where every one present will be on an equal footing with everybody else, without delegate privileges as to votes and where actual business will therefore be. tabooed. A resolution was passed instructing the executive board to prepare at least one such meeting.

In the afternoon of the second day the Chamber of Commerce of Cincinnati treated the members to a trolley ride and a visit to the Rockwood Clay Works and the Cut Glass factory. The last session of the convention reached well into the night of the second day.

Report of the Washington State Convention

The Washington State Bee-Keepers Association met at North Yakima, January 8 and 9, 1913. There were present some of the most extensive specialist bee-keepers of the state numbering their colonies by the 400 and 500 and more.

The opening session was at about 11 a. m. and Judge Milroy welcomed the convention to the city in a very pleasing address.

SPRING MANAGEMENT OF BEES.

Robert Cissna, talking on this subject, advised a careful examination of the apiary. He marks only the weak and queenless colonies, and unites, putting the colony with the queen on top. Be sure the bees have enough honey to carry them along. More loss is occasioned through starvation in winter than from any other cause. Feed the weak colonies if worth saving, with combs of honey taken from stronger colonies, if you have no extra combs of honey on hand from the previous season.

THE NATIONAL AND ADVERTISING HONEY

Mr. George W. York, of Sandpoint, Idaho, former president of the National Bee-Keepers' Association, then spoke on the National Association, what it is doing, and proposes to do. He urged that every bee-keeper's organization become affiliated with the National, for "In union there is strength"; and there should be the fullest spirit of co-operation on the part of all.

Pres. Burdick spoke of the Washington Honey Producers' Association, of which he is manager. They handled over a carload of honey the past season at an expense of 10 per cent to the Association. He believes that the parcel post will help when it once gets under full headway, but it will need some improvement over its present plan of operation. In a co-operative organization, it is essential that every member be absolutely loyal, even if at times they may lose a little. In the end, success would be assured.

PREPARING BEES FOR WINTER.

Mr. Virgil Sires said that a goodly portion of young bees, a good queen, with plenty of good stores, and a hive-cover that insures the bees against dampness, are the essentials for good wintering.

He favors providing slight upward ventilation, through a quilt or packing of some kind. He places at least four thicknesses of burlap over the frames, putting the cover on this, and leaving an air space between the cloth and the cover. Never place the cover down tight on the cloth, far better, use no cloth at all, for when the cloth gets damp it does not dry out easily. If there is a space between cloth and hive-cover dampness more easily escapes.

Mr. Sires prepares his bees for winter at the last extracting; or if comb-honey colonies, when removing the last supers. If everything is in normal condition in the brood-chamber at that time, the hive is covered up for the winter. There should be at least 25 pounds of good honey in the hive, 30 or 40 pounds would be better. If the brood-chamber has not enough stores, he removes empty combs and replaces them with combs of honey.

In the locality of North Yakima Mr. Sires believes chaff-hives, or protection to the hive-body, is a needless expense.

BEE-KEEPING AT THE STATE COLLEGE.

Prof. A. Melander, the Washington State Entomologist, of Pullman, Washington, addressed the convention, saying the agricultural college would be glad to help the bee-keepers of the state. He desired to know just what they would like the college to do for them. The prospect is that a course in practical bee-keeping will soon be installed, and a thoroughly competent expert employed throughout the year. Prof. Melander captivated the convention with his pleasing manner and evident desire to get in touch with the bee-keepers of Washington.

LIQUEFYING HONEY.

Mr. A. G. Kuykendall described his method of liquefying honey, using a tank with steam-pipes running through it. Mr. York also explained in detail the methods and equipments which he used in Chicago, when he bottled some three car-loads of honey during the winter.

Mr. Cissna said he heated his extracted honey and bottled or canned it just as fast as it was extracted. It takes less heat at that time. He thinks that more honey is consumed if sold in the liquid form. He uses a three burner gasoline stove under a jacketed can into which the honey

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is put for heating. Great care must be used not to overheat the honey.

SELLING CANDIED EXTRACTED HONEY.

Mr. Starkey told his experience in selling candied extracted honey. He used common pasteboard oyster pails and put one pound of honey in each. He rosined the pails, then put the honey in liquid and let it granulate. They were soon all sold out in the grocery stores, and calls came for more. The pasteboard pail can be torn off, leaving the solid chunk or brick of honey, if any prefer it in that way. They retail at 20 cents each. This is a simple way to put extracted honey on the local or home market.

OTHER PAPERS.

Mr. S. King Clover read an interesting paper on "Weather Conditions Favorable for the Secretion of Nectar in the Bloom".

Two interesting papers were read. One by Mr. C. P. Dadant, Editor of the American Bee Journal, on Education in Bee-Keeping and the other by Mr. E. B. Tyrrell, Secretary of the National Association, on Benefits of the National Association to Bee-Keepers.

OFFICERS ELECTED—BANQUET.

The officers elected for the ensuing year are:

President, Dr. A. E. Burdick of Sunnyside; Vice-president, Lee G. Simmons of Ellensburg; Secretary, J. B. Ramage of North Yakima; Treasurer, Robt. Cissna, of North Yakima.

The banquet occurred at 12:00 noon. It was indeed a "banquet". The wives of the bee-keepers had provided all the good things to eat they could think of, and placed it on tables arranged in the roo s in the courthouse where the meeting was held. Of all the things to tempt one's palate, those Washington women surely had a great abundance. It was a very enjoyable occasion, and might well be duplicated in many other places where bee-keepers' conventions are held.—GEO. W. YORK, Sandpoint, Idaho.

We need a new law on bee and brood diseases. Two years ago we secured a very good law through the Legislature, which was forthwith vetoed by Gov. Osborn. We now have a Governor-elect, who, I am quite sure, knows the value of the bee to agriculture and horticulture better than does our present Governor, so we hope for better usage next time. A Legislative Committee of three members was appointed at Saginaw a year ago to hold over until this meeting. We will hear from them later. I hope something tangible will come from this committee, as we are sorely in need of a better law than we now have for the suppression of disease among bees.

Northstar, Mich.

CONTRIBUTED ARTICLES~

Michigan Prospects

BY E. D. TOWNSEND.

(President's address at the Michigan State Meeting.)

THE season of 1912 was a peculiar one in Michigan. The winter, to begin with, was of more unusual severity upon bees than for several years. The winter was followed by a spring of only ordinary weather for the breeding up of diminutive colonies, the result of a hard winter. Then followed a summer of rainfall. But bee-keepers were more fortunate than some of their brother agriculturists.

We had very good weather during the honey-flow from clover, raspberry and basswood in the latter part of June and the first part of July. The fall flow was a failure, with an abundance of flora at hand, and the weather was so bad that bees could not take advantage of it. The shortage of the fall flow of honey has left many bees in bad shape for winter; for they did not breed up as they usually do in a good season. Many colonies were short of honey for winter stores, and where not fed, may starve before spring. The enterprising bee-keepers, the ones who may expect good returns from their bees another season, have provided them with stores to last them until the honey-flow next June.

It has been said that there is a "silver lining to every cloud." I *know* that there is a silver lining to the cloud of winter loss, and brood diseases among our bees, for I see our State nearly free from the "cheap John" 10-cent comb honey so prevalent in past years. These bee-keepers are nearly "off the map," leaving the territory and market for the more enterprising, the leading bee-keepers of the future. The thoroughly posted bee-keeeper is not afraid of hard winters, or disease among his bees, for he knows how to eradicate the disease, or refill his hives with bees after a hard winter.

During the year much has been printed about the advisability of producing more comb honey instead of extracted, the comb-honey crop being short. This agitation will likely cause more comb honey to be produced another year, and if one is fitted up for the production of extracted honey I see no reason for an expensive change in apparatus.

Michigan's product is the finest honey in the world, and her intelligent bee-keepers, whether comb or extracted honey be produced, will never have trouble to find a market at the *highest price.* Michigan's 1912 crop of both comb and extracted honey will all be sold long before the 1913 crop is ready for the market. This is a healthy condition that should be appreciated.

Since our last meeting in Saginaw, a year ago, we have lost two valuable members, Hon. R. L. Taylor, of Lapeer, Mich., and Byron Walker, of Clyde, Ill., who claimed Michigan as his home. The committee which I will appoint later will kindly see that suitable resolutions of sympathy be extended to the bereaved families.

An Austrian's Impressions of Japanese Bee-Keeping

BY ALEX SCHROEDER.

MRS. SCHROEDER and myself crossed the United States this year (1912), coming from Japan, where we passed some most interesting weeks.

On March 23 last, the meeting in Gifu, Japan, of which your number for October, 1912, brought such nice pictures, was held by over 700 Japanese bee-keepers, representing the towns of Wakajama, Hiroshima, Nagasaki, Saga, Ehime, Kagawa, Kanazawa, Aichi, and Miye, and proved a very interesting one. The discussions were animated, and about most important points, as, for instance, the uniformity in dimensions of frames and hives, the necessity of having a better race of bees, etc., proved that the little Japs are progressing also in this branch of agriculture, which the Austrian bee-master, Baron Ehrenfels, called "the Poesie of Agriculture."

We had occasion to visit a prominent bee-keeper, Mr. S. Tamura, of Chiojima, in one of the suburbs of Kioto, the thousand temple town in Japan, and found him to be quite up-to-date. I beg to enclose a photograph taken in his interesting bee-yard on April 1, with a changeable weather between sunshine and snow. Mr. Tamura received us in the Japanese style of extreme politeness, showed us all about his yard and magazine of bee-supplies, which were full of the most exactly-made implements of all kinds and tastes.

His hives are made in the American style. He winters his bees outdoors in double cases, filling the space between the body of the hive and the outer box with rice-bran, and covers the frames with newspapers. He showed me a strong Italian colony containing brood in all stages, and even some beginnings of queen-cells, and provided with lots of sealed honey.

It was a pity that I could not speak Japanese, or that he did not know any

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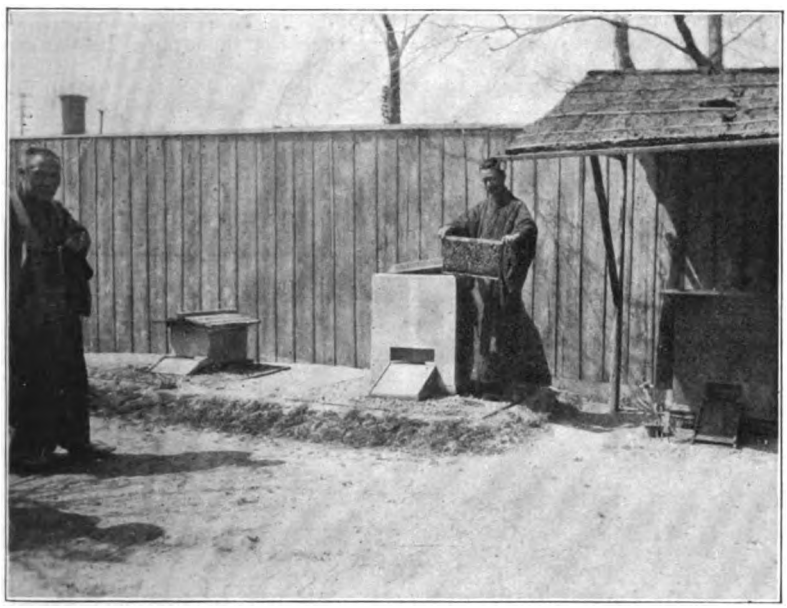
of the European languages. So our conversation was not very animated, but still we managed very well. When I declared the bees of the hive open in the photograph were "Italian bees," and the one to the right "Carniolan bees," he was very well satisfied, and to my question, why he had no Japanese bees, he replied, "No good." He showed us also a small house where pictures and illustrations, as well as diplomas and like printed matter, were exposed in glassed frames, one of them showing the features of "Langstroth;" in another the British Bee Journal of April 1, 1909, containing the picture of Mr. Tamura himself.



MR. S. TAMURA, OF KIOTO, JAPAN, IN HIS APIARY.
Italian and Carniolan bees are kept in hives of American style.

After we had been shown all about the yard we were taken into his house, a small Japanese building, where we were treated to tea and sweets, and, on leaving, he presented us with two glasses of his honey.

We were very well satisfied with our call, and glad to have been able to meet a progressive bee-keeper in Japan.

Trieste, Austria.

Cypress or Pine?

BY A. F. BONNEY.

IN THE American Bee Journal for January, page 28, Dr. Miller replies to an inquiry that "my guess would be that pine should have the preference, but I have had no experience with cypress."

The writer, not long ago, read that in the city of New Orleans some cypress water pipes were taken up after lying in the ground for 100 years, and found to be as sound as new wood. The cast-iron plugs which united the log pipes were about rusted away.

I do not doubt this, for cypress logs are now being dug from the swamps of the South to be cut into lumber. I have hives of cypress bought two years ago which have been sitting in damp to wet ground, winter and summer, since then, and they show no sign of decay.

I do not hesitate to express the opinion that an unpainted cypress hive will never decay. If not painted, the boards may warp, as to that I do not know, but shall another season, as in the spring I shall put some into use. The lumber is heavier than pine, but is easily worked, and being compact holds nails well. I think it the ideal lumber for hive stands and bottom-boards, and it may prove to be for hives.

Buck Grove, Iowa.

[The above short article was referred to an old carpenter of great experience, who was, in his young days, a builder of sugar mills and plantation homes in the country of cypress, Louisiana. He says that although this wood is a little heavier than pine, with a closer grain, it is very serviceable and durable, does not warp, and has been used largely for shingles and weather boarding, as well as for inside finish. The only possible objection to its use is the matter of price. Good cypress is a high-priced wood in the North. But white pine will soon be still higher priced.—EDITOR.]

Ventilation of the Hive

BY ISAAC HOPKINS.

HAVING given much attention to the ventilation of hives, and endeavored by a fairly exhaustive series of experiments to find out what part the bees play in it, if any, and the best method of securing the most perfect ventilation, I was much interested in the article on the subject by your able contributor, D. M. Macdonald, in the May, 1912, issue.

There is much in Mr. Macdonald's statements that I cannot accept, and even our ordinary experience points to an opposite conclusion.

What I have to say is chiefly connected with summer ventilation, though it applies also to our winters, where, in most districts of New Zealand, the bees are more or less active all the year around. I have no experience with cellar wintering. Where I differ with Mr. Macdonald, and where I feel sure he is wrong, is in his insistence that upward ventilation is necessary to secure "a warm, dry interior (to the hive), with a supply of fresh, sweet air enveloping the cluster."

Bees often take up their abode in buildings, as Mr. Macdonald says, where there is ample ventilation on all sides, and the same may be said when they build in the open, to the branch of a tree. But this has no bearing on the question of ventilating, where the bees are domiciled in a confined space, this being a different matter altogether.

We cannot get away from the fact that bees endeavor to stop every chink of the hive, except the entrance, with propolis, whether above or at the sides, especially toward winter, and in districts where I have lived among pine trees, where gummy substances were plentiful, the mats or quilts in spring have been so plastered with propolis that it has been difficult to tear them off the frames—the hives were hermetically sealed above the frames. Our friend has labored hard to prove there is upward ventilation in hollow tree-nests and straw skeps after the latter have been propolized. In this connection, I might ask him why the bees propolize straw skeps, mats, and chinks if it is not to stop upward ventilation?

Hollow-tree nests are common in the New Zealand bush, and though I am quite familiar with them, I have never seen one that afforded means of ventilation except by way of the entrance.

In Gleanings in Bee Culture for Oct. 15, 1911, I gave particulars of a series of experiments carried out by a friend of mine (the Rev. J. R. Madan) and myself, in the months of January and February, 1889, in Auckland, N. Z., latitude 37 degrees south. These being our two warmest months, afforded the best period of the year for carrying out such a test, and the results arrived at were very conclusive, so far as we were concerned. Our tests were carried out with a one story and a two story hive. They were continuous, and extended over the best part of the two months. We had as many as 17 thermometers in use at one time, 12 inside of the hive and 5 outside. Each of the 12 was insulated, so far as any contact with the outside air was concerned, as it was possible to make them, and the hive was prepared in such a way that each instrument could be instantly withdrawn for reading without opening it. Readings of each thermometer, both outside and within the hive, were taken about every hour, from very early in the morning until late at night, and noted, together with the direction and force of wind; in fact, both my friend and myself being scientifically inclined as laymen, we endeavored to eliminate all possibility of error.

We used different kinds of mats over

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the frames, some were very porous, open scrim ("burlap," I think is the American term), some less porous, two or three layers of stout paper, enameled cloth, and several times absolutely hermetically sealed the hive. In all these cases, while the entrance remained the same, there was practically no difference in temperature within the hive. Quoting from one of my notes made at the time, and mentioned in Gleanings: "The most notable features are, (1), that the temperature at the top, just under the mat, was always lower than that, 3 inches below; (2), that the lower thermometer (near the bottom-board on one side) was highest until the sun set; and (3), that when the external temperature fell there was always a fall inside the hive."

The difference in the temperature between the upper and middle parts of the hive ranged from 3 to 6 degrees, and on one occasion 8 degrees. The two thermometers, one on each side of the entrance, and projecting inside the hive, always indicated a difference of several degrees. This fact, in conjunction with the results of each phase of our experiments, pointed unmistakably to the conclusion that the bees under all conditions carry out their own ventilation, and that the vitiated air is driven out of one side of the entrance, while fresh air is drawn in at the other.

Mr. Macdonald speaks of the carbonic acid gas given off by the bees, and also of moisture within the hive, both of which must be gotten rid of, with which I quite agree. It would, however, be interesting to learn how our friend arrives at the conclusion that "it may be taken as correct that the consumption by the bees of 24 ounces of honey will produce no less than 18 ounces of water!"

It seems a most extraordinary statement to say that a given quantity of honey will produce 75 percent of water when consumed by bees. When first gathered, nectar rarely contains more than 25 percent of moisture, and usually much less; and as I presume it is the more ripened article the bees consume as a rule, more than 50 percent has to be accounted for, and this amount we could hardly expect to be supplied by the conversion of the other constituents of honey.

Both water and carbonic acid gas are heavier than the atmosphere, though both up to a certain point are suspended in it. Carbonic acid gas is more than half as heavy again as ordinary air, and the average amount in the air is three-tenths of one percent, varying a little in different situations. If the proportion of this gas is greater within the hive, its tendency will be to fall to the lower part, and the same with the moisture; hence, I take it, the reason why the bees find it necessary to ventilate downwards, and through the entrances, rather than upward.

Another experience, mentioned in Gleanings, is very convincing to me. In my early days of bee-keeping, 40 years ago, when porous mats and contracted entrances in winter were advocated, I, of course, followed the general rule, and as a result had plenty of moldy combs to deal with in spring when first opening up the hives, and also mild cases of dysentery through soured food. Later on, I concluded that the need of some better system of ventilation was the cause of the trouble, but it was not until the experiments mentioned were carried out that I became thoroughly convinced that the general idea of upward ventilation was wrong—I have never had a moldy comb since.

To facilitate perfect ventilation as indicated and carried out by the bees, a liberal entrance must always be provided both in summer and winter, and this I have advocated and adopted myself ever since with perfect satisfaction.

Auckland, New Zealand.

European Foul Brood

BY EUGENE BAKER.

MY EXPERIENCE with this disease has not made me a convert to the generally accepted theory that Italian bees, and especially golden Italians, were most immune.

In the spring of 1911, my apiary, located near Duarte (views of which accompany this article), contained 64 colonies. Ten had golden Italian queens, three leather colored, and one an Albino; all from a prominent eastern breeder the previous autumn. Those in the remaining colonies were decendants of Italian queens purchased at different times in the East, few of them being purely mated.

Until two years ago European foul brood was unknown in southern California. Although a subscriber to all three bee journals for years, I always skipped the articles on foul brood, and consequently very readily diagnosed the disease as chilled brood. It was not until a neighboring bee-keeper, Mr. Blair, sent a frame to Washington and received the assurance that it was the genuine European foul brood, that I knew what was the matter.

It was then late in the season, and in the meantime I had lost nearly half of my colonies. I at once sent for our inspector, Mr. George De Sellem, and he found all the remaining colonies affected. He later found the disease in every apiary he visited in my vicinity. Strange to say, the golden Italians had been the first to succumb, then the leather colored, and as far as I could judge there were only two colonies left that had pure Italian queens and they were badly diseased.

While Mr. De Sellem is an expert with American foul brood, at that time he had had practically no experience with European, and was undecided whether to treat them at once or leave them until spring. We finally decided to treat some of them at once by the Alexander plan, and he helped me find and kill the queens in 24 of them, which I later requeened with Carniolans purchased from Mr. B. B. Hogaboom. Twenty-one queens were successfully introduced, and all the colonies had plenty of stores for the winter.

When I examined the bees last spring I found every colony having a Carniolan queen in fine condition and perfectly healthy, and all of them have remained so. Every other colony was badly diseased, and only 32 colonies left, all told.

In the same yard were about 60 colonies, owned by Mr. Bliss, from whom I leased the ground. They were all more or less diseased the previous season, and had not been treated at all. He requested me to care for them, as he was too busy. I found nearly half of them dead, and the combs destroyed by moth worms. By uniting I formed 20 pretty fair colonies, which, in connection with my own, I treated at the beginning of the flow by placing the

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queen in a clean hive containing empty combs, or combs with honey but no brood, and the brood above an excluder, removing the most affected combs. In every case where the colony was strong the combs were cleaned out and filled with honey, the new brood below being healthy. In the weaker ones it was necessary to repeat the treatment and requeen with Carniolans.

By way of experiment, one Italian colony, which had failed to respond to the above treatment twice, was requeened on Aug. 18—nothing being done but to remove the Italian

APIARY OF EUGENE BAKER. DUARTE, CAL.

and introduce the Carniolan immediately. This colony was the only one in the apiary having the disease at that time. On Sept. 30 I examined it, and to my surprise, every cell was clean, the new brood being as fine as you would wish to see. Why the old bees should do for the Carniolan what they

APIARY IN SOUTHERN CALIFORNIA WHERE CARNIOLAN BEES ARE PREFERRED TO ITALIANS.

failed to do for their own queen is beyond my comprehension.

I am led to believe that European foul brood is not carried in the honey, from the fact that a stack of seven 10-frame hives containing honey and diseased brood taken from colonies for rendering, was left uncovered by some careless visitor and robbed out, with no bad results.

The Carniolans are hustlers, nonpropolizers, gentle, and, handled in the same manner, I have not found their swarming propensity more developed than in any other bees. I am very much pleased with them so far, and inclined to adopt them exclusively.

Mr. Blair found many of his Italian colonies re-infected this spring, and after satisfying himself that my Carniolans came through perfectly healthy, he requeened most of them with Carniolans, and he recently told me that he thought all of his bees were free from the disease, and that if he had requeened with Carniolans instead of Italians last year, he would have had more bees and more honey this year. He has over 100 colonies. Two years ago he had 216.

Los Angeles, Calif.

Some Observations Concerning Comb vs. Extracted Honey

BY B. KEEP.

THE question of comb vs. extracted honey can never be decided in favor of either to the exclusion of the other, each has its proper sphere, and always will have. But comb honey, by reason of the form in which it reaches the table (in a small package), and the manner in which it is eaten, stands as a luxury. Only a very moderate quantity can be eaten by each individual—a little suffices to satisfy, and the cost is more or less suggested by the gingerly small portions served to each person.

There is, on the contrary, an unlimited field for extracted honey. It is unnecessary to try to state all its possibilities. I am not discussing the production of either form of honey; that is a question for each producer to decide for himself.

The demand for comb honey being, as outlined above, self-limited, it remains for the honey men, both producer and dealer, to educate the people in the use and the possibilities of liquid honey. When purchased in pint, quart, half gallon and gallon quantities, honey does not fall under the head of luxuries, although it may not be considered a necessity. When purchased in those quantities the cost of each spoonful is not in evidence, and when a person once becomes acquainted with the many delicious combinations possible in consuming it, there is but little desire for wax with it.

Comb honey will always have a demand to be met, but from the nature of things no great increase can be expected. Comb honey is a luxury. Extracted (or liquid) honey is not a luxury. Will it not then be advisable to concentrate efforts to popularize and increase the demand for honey upon the cheaper, more plentiful, and more convenient liquid honey? This is not a reflection upon comb honey, but rather a suggestion of the most promising direction of the market for honey, either kind of which any beekeeper can produce, as he may see the demand and his locality may permit.

Lyndhurst, N. J.

Eight and Ten Frame Hives

BY DR. C. C. MILLER.

ON PAGE 16, there seems to be a difference of opinion between J. J. Wilder and ye editor. Each is entirely right—from his point of view. Editor Dadant says, "Properly made hives should have the same space, *per frame*, whether they are 12-frame hives or 6-frame." Aye, "should have;" but they don't have; at least 8-frame hives and 10-frame don't. And however clear that may have been in Editor Dadant's mind, the importance of the matter is sufficient warrant to go into it a little more fully.

The inside width of an 8-frame hive is 12⅛ inches. With frames spaced 1⅜ inches from center to center, 2¾ inches must be added to the width to make it accommodate two more frames. That would make the width of a 10-frame hive 14⅞ inches. Instead of that, the width of 10-frame hive is 14¼ inches! To put it in other words, to accommodate the two additional frames requiring 2¾ inches, only 2⅛ inches are added. A shortage of ⅝ of an inch.

In an 8-frame hive, the 8 self-spacing frames take 11 inches, leaving a space of 1⅛ inches. That leaves plenty of room for a dummy at one side. With the removal of the dummy, the taking out of the first frame, or indeed of any frame, is an easy matter. If worst comes to worst, so much glue having accumulated as to make it troublesome to get out the dummy, the dummy may be omitted entirely. Yet that has not been found necessary by the writer during all the years since these hives were first introduced, although there are some who prefer to omit the dummy from the start, allowing a liberal space at each side of the hive. So it comes to pass that taking the frames out of an 8-frame hive can never become a very difficult matter.

In a 10-frame hive, the 10 self-spacing frames take 13¾ inches. That leaves a space of ½ inch, or ¼ inch at each side. The frames may be all crowded to one side, and with the ½-inch space left at one side, it seems there ought to be plenty of room to take out the first frame. But that ½ inch is not a constant factor. for glue constantly crowds the frames a little farther apart, making the side-space so small that getting out the first frame becomes a matter so difficult that Mr. Wilder well says he prefers to use 8-frame hives.

The question arises: Why is room for a dummy allowed in the 8-frame hive and not in the 10-frame? Like enough the craze for economy of material suggested in the first place that a 10-frame hive might do with no dummy

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and ⅛-inch space. But whoever has tried, side by side, 8-frame and 10-frame hives, has no doubt concluded that after there has been some accumulation of propolis, the space in the 10-frame hive will not do as compared with the 8-frame.

More important than the question as to the origin of the limited space in the 10-frame hive is the question why this handicap has continued upon it all these years. If the extra space is a good thing for the 8-frame hive, it is an equally good thing for the 10-frame. If the 10-frame is just as well without the extra space, so is the 8-frame. Is there a ghost of a reason why the two should be different? In other words, why there should not be, as Editor Dadant says, the same space *per frame* in each hive? Perhaps the answer will be that there are thousands of hives of that particular size already in existence, with covers and other parts to correspond, and it would make confusion to intoduce a size just a little different. But that argument hardly appeals to the bee-keeper, especially to the beginner, however strongly it may appeal to the manufacturer. In fact, to the practical bee-keeper it appears little less than an outrage that this wrong, this handicap upon the 10-frame hive should be continued year after year.

The trouble is that the beginner does not know, while his hives are new, the trouble in store for him, and after he has learned about it he has so many hives on hand that he quietly submits rather than to have two sizes in the same apiary. Before he has stocked up to any considerable extent with hives measuring 14¼ inches, inside measure, he will do well to demand 14⅛. Even if he has to pay a little more for the unusual size, it will be money well spent. Let the 10-frame hive have just as fair a chance as the 8-frame.

Marengo, Ill.

[We have also a letter from A. C. Miller, of Providence, R. I., calling attention to the fact that the manufacturers make the 10-frame hive smaller, per frame, than the 8-frame. The trouble with me is that I have been using a 10-frame hive which has the regular one-and-one-half inches for each frame, and have never given thought to any other. There is a difference between what *is* and what *ought to be*. Below is A. C. Miller's letter.—EDITOR.]

In the January issue, page 16, in a foot-note to Mr. Wilder's comments on 8 and 10 frame hives, you say, "Properly made hives should have the same space *per frame*," etc.

In good old times 10-frame hives were 20 inches long by 16¼ wide, outside, but about 20 or more years ago the supply men made even figures, and all hives were made 20x16 inches. That lost quarter of an inch is as troublesome as an extra inch on a man's nose, and is at the bottom of such trouble as Mr. Wilder refers to. Last year, I understand the manufacturers went back to the 16¼-inch width. It will make nice fun for those who use covers like the "Colorado" and "Metal Topped" fitted to the 16-inch width.

There will be a loud noise by and by.

The 12-Frame Langstroth Hive

BY R. F. HOLTERMANN.

THE report of Mr. Greiner, pages 56 and 57, in connection with the New York State convention, interests me. The wedges which I use, mentioned by Mr. Greiner, are kept in place by driving a tack through the thin end, the point of the tack going through the wedge, and when inserted, this tack sticks to the bottom-board or brood-chamber.

In the last lot of hives I have had made, the wedge idea is embodied in the hive side. I had to learn that the space under the combs did no harm after the close of the honey-flow.

The third line from the bottom of the third column, page 57, states that I use 8 frames in the 10-frame space in the supers. I may have said what I did not mean. It should be that I use *10 frames in the 12-frame super space.* I value the 12-frame hive to such an extent that when I buy bees in the 10-frame hives, I take out the combs and put them into the 12-frame brood-chamber, waiting an opportunity to sell the former. Let no one get the impression that I use a Langstroth hive less than 12 frames.

The bees appear to be wintering well here. They had a cleansing flight late in December, and at present it looks as if bees would come through much better than a year ago; however, it might yet prove to be a very late spring and bees might suffer.

Brantford, Canada.

The Name of Spanish-Needles

BY JOHN H. LOVELL.

IN THE American Bee Journal for December, attention is called in an editorial to Spanish-needles, a most valuable honey-plant of the Mississippi Valley. Further information in regard to the Latin and English names of this plant, it is added, will be given later. This species, in the lowlands of the Mississippi River, covers large areas, and when it blooms in September the golden-yellow rays present a most brilliant display of color. The flowers secrete nectar in great abundance, which yields a golden honey of great excellence and popularity.

Late in the fall of 1912, Mr. Dadant gathered specimens of the fruit of this species, and of another taller plant belonging to the same genus and growing in the same situation. The latter species has small rays, and it is not at all conspicuous. The plants had long been out of bloom, and there would seem to have been little but dead material to collect. These dried specimens were sent to me through Mr. E R. Root for determination.

The identification of the shorter species, or the plant so valuable to bee-keepers as a source of honey was undertaken first. The material consisted chiefly of achenes (the so-called seeds) and involucral bracts. After a careful examination of all the characters available, the plant was referred to *Bidens aristosa* (Michx.) Britton. In one particular, however, it differed from the 7th edition of Gray's Manual, the awns were downwardly instead of upwardly barbed; but, according to the Illustrated Flora of Britton and Brown, both forms occur.

Under these circumstances it seemed desirable to have my determination verified by an acknowledged authority. At the Gray Herbarium of Harvard University, there is ample material of all the species of Bidens for comparison. Accordingly I sent part of the fruit to Prof. M. L. Fernald, who is a joint author with Dr. B. L. Robinson, of the 7th edition of Gray's Manual, and one of the first anthorities on the American flora, stating that I had idenfied the species as *Bidens aristosa.*

A few days ago I received a letter from Prof. Fernald, in which he says:

"The fruit you sent was recognized as that of an anomalous variation of *Bidens aristosa*, in which the barbs of the awns are retrorse instead of ascending. I have several times started to look into the matter, and have been as often interrupted, so that today, for the first time, I have actually got down to the question and followed it through. For the present the plant had better pass as *Bidens aristosa.* In its awns it shows a distinct departure from that species, but not in its other characters. We have considerable material from Illinois and Missouri, and it seems to be so abundant that I shall soon publish it as a variety."

The species is, therefore, undoubtedly *Bidens aristosa,* under which name it should pass until it has been described as a variety by Prof. Fernald, when the varietal name should be added.

As to the English name Spanish-needles, in view of the fact that there is another species of Bidens (*B. bipinnata*), which is also called Spanish-needles, it would no doubt be better to give the honey-plant another name. But this is easier said than done. We understand that in the region of the Mississippi Valley it is generally called Spanish-needles. If we change the name on paper, the farmers and bee-keepers will still continue to call it by its old name.

But to what name could we change it? Gray's Manual gives no common or vernacular name for *Bidens aristosa*, while Britton and Brown call it tick-seed sunflower, which is no better than Spanish-needles. It frequently happens, indeed, that several different species have the same common name. In this very genus of Bidens several species are called beggar-ticks, while a

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variety of plants pass under the name of thistle and sunflower.

It seems better, therefore, to retain the name Spanish-needles, but to prefix to it some adjective, such as showy or yellow, to distinguish it from the other Spanish-needles (*Bidens bipinnata*), which has small heads with the rays short or none. We suggest that the honey-plant (*Bidens aristosa*) be called large-flowered Spanish-needles, and that *bidens bipinnata* be called small-flowered Spanish-needles. This will permit the name to be retained, and yet prevent confusion.

The tall species of Bidens gathered by Mr. Dadant, and sent to me is *B. frondosa* L. The flowers are inconspicuous because the rays are small or absent. This is a very common and widely distributed species, extending throughout the eastern United States, and from Florida to Texas in the south, to Nebraska in the Central States, and northward to British Columbia. Some of the common names of this plant are beggar-ticks, stickseed, beggar-lice, and pitchforks.

No specimens of *Bidens bipinnata* were received, and this may not occur at Hamilton, Ill. It is not found in Maine, and is not given in the list of the plants of Vermont. It extends southward from Rhode Island to Mexico and tropical America. It may be distinguished by the following characters: The long achenes are angled, usually 4-awned, the awns very unequal, downwardly barbed, the barbs rather coarse.

Waldoboro, Maine.

Sacbrood

BY MORLEY PETTIT.

I HAVE just read your editorial on page 41 of the American Bee Journal about dead brood. I can also say that I never saw any of this before starting inspecting, and attribute this to the fact that we were always careful to keep our colonies up in good shape at home. On inspection work I have found a great deal of this dead brood, which is neither of the varieties of foul brood. It has just been described by a bulletin from the Department at Washington, as being of a slightly infectious nature, although the bacterial cause has so far not been isolated. It has been named sacbrood. (See page 47.—Editor.)

I have found it mostly in colonies of black bees, where no new queens had been introduced for a number of years, and the stock was run out.

As to bee terms (page 42), I am Irish enough to have adopted the term "beekeeper" without the hyphen before I ever knew that Editor Digges was doing this. I never took the trouble to look it up in the dictionary, but decided it was the best way to spell the word, and after considerable struggle with proof-readers in getting out my mailing matter, have succeeded in having the term used in all publications and bulletins from this Department.

You ask, "Has honey advanced with other food products in prices?" I claim that it has not, even in Ontario where the price has advanced 5 cents per pound since the Crop Report Committee started operations about 10 years ago. It is simply wonderful the amount of work that can be done by judicious advertising and holding together on the part of the bee-keepers.

Guelph, Canada.

Reminiscences of Smoking Bees

BY G. C. GREINER.

MY EARLIEST recollections on the above subject date back to the spring of 1876. During the preceding fall and winter we had manufactured and sold to the surrounding bee-keepers within a radius of six or eight miles between 175 and 200 hives. Nearly all of these bee-keeping friends were farmers, keeping anywhere from 1 to 20 colonies in the old style box hives. For a stipulated fee, we had also agreed to transfer all these bees into our new hives as soon as the season would admit.

To the experienced bee-keeper, the fulfillment of these contracts would have been an enjoyable season's work, but with the exception of a few primitive hints by a bee-keeping friend, we knew nothing about bees, had never seen the inside of a hive filled with bees and depended wholly upon our prospective experience for our bee education. Although we had a little inkling that bees could be managed with smoke, the existence of a bee-smoker made especially for this purpose, was unknown to us, and when we started on our transferring expedition, we expected that a couple of little briar-pipes would furnish us this quieting medium. We were sadly mistaken. Before we had transferred many colonies, we had found by sorrowful experience, that smoking to excess, as was necessary to keep bees under control, was not the most enjoyable part of our new venture; it made us deathly sick. The only way to remain master of the situation was to use a little strategy. We would sly up to a hive, close its flyholes and other existing openings with rags, grass or anything handy, set the hive on the ground bottomside up, and before the bees had time to realize what had happened, would cover the opening with our driving box. This driving box was provided with a rim two or three inches wide, and fitted any common box hive in use.

When this stage of the operation was reached without mishap, we generally had the control. After drumming against the hive ten or fifteen minutes, or until the bees had filled themselves with honey and had entered the driving box, we would place the latter on the old stand to catch the flying bees, and carry the hive a little to one side, generally in the shade of some trees after which the remaining part of the job would be fair sailing.

All in all, our season's work proved satisfactory beyond our expectations, and with the exception of a few incidents of an amusing nature, nothing of great importance transpired. But the details of some of these little happenings were so impressive, that even now, after thirty-six years have passed, I can recall them as vividly as yesterday's transactions.

One of our customers, living in the suburbs of our village, owned a row of some 18 or 20 colonies, as nearly as I can recollect, which occupied a long continuous platform near to and facing his neighbor's fence. The hives were placed close, with hardly room enough between to allow removing one without touching another. The bees were, as all the rest in this locality, of the common black German strain, and this particular lot proved to be, as we afterward had occasion to observe the most ferocious fighters we had ever encountered.

We began the job early in the morning, before many of the bees were flying, and by the application of our usual tactics succeeded quite well in transferring the first two or three swarms. But with the rising sun, bees grew livelier. The disturbance at the bench, careful as we tried to be, was felt all along the line, and soon some of the more inquisitive occupants of the hives were buzzing around our heads. It wasn't very long before—bing—one had objected in a very impressive way to our invasion; pretty soon another followed suit, and still another left its mark, and in less time than it takes to tell it they were giving it to us right and left. Even shirt sleeves and pantaloons were of no account, and they seemed to find sensitive places almost anywhere. To remain there would have been premeditated suicide, and an unconditional flight, that landed us behind the closed doors of a nearby shop, was our only salvation. Although this place of refuge was a grimy, dirty blacksmith shop it seemed to be the most comfortable place on earth, for everytime we opened the door to ascertain the prospects, a few sharp reminders from watching sentinels would convince us that they still held the fort.

For a time terror reigned supreme. The owner of the bees, who had been with us during our early manipulations, admiring our skill and heroism, had sought shelter in his woodshed long before the real fun commenced. Neighbors, too, who had come to the fence to witness the great feat of transferring bees from one hive to another, had found it advisable to take an unceremonious departure at an early stage of the fracas, and even cats and dogs had to fly for the cathole.

Just as we were meditating on the probabilities of a life sentence, deliv-

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erance in the shape of a tremendous cloud of smoke appeared from the direction of the woodshed door. The proprietor of the ranch, taking pity on our helpless condition, had put some live coals into a large tin pan and onto these a quantity of woodpile accumulations, which sent up a column of smoke that compared favorably to the puffings of an express locomotive. Holding this pan in front of himself, it had a magical effect on the bees. They did not offer to molest him on his way to the shop, and when he opened the shop door in a triumphant way, he said: "There, take this pan and blow the smoke against the hives, that will fix the devils."

Our friends' advice proved literally true. After allowing the infuriated bees a reasonable time to quiet a little, and replenishing the smoke producing pan with a liberal supply of fuel from the woodpile, we were enabled to resume our work. In due time we finished the job with no trouble to speak of.

Only a short time ago a bee-keeping friend, to whom I related the incident, remarked, after we had a good laugh over it: "Why don't you write it up for the bee-paper?" And here it is.

A little later another of our customers had a similar surprise in store for us. On a previous visit we had discussed the benefits and advantages derived from the use of a properly constructed bee-smoker. Being somewhat of an inventive genius, he had fastened over the valve of a common hand-bellows, such as were used in those days with the old-fashioned charcoal flat irons, a tin can with perforated top and bottom. This latter he filled partly with rotten wood and finished with live coals from the stove. In opening the bellows the suction would draw the smoke inside and closing it would send the smoke out of the nozzle. With the exception of the disadvantage that it required both hands to work it, our friend's contrivance would have been quite a formidable bee-smoker, f moderately used. But when we called there at this time, he was so enthusiastic over his invention and so eager to demonstrate its efficiency that he not only blew the poor bees of an opened hive off the frames and over the edge of the hive, but half way across the yard.
LaSalle, N. Y.

[Similar troubles to friend Greiner's have been the lot of many of the older bee-keepers. The ancient smoker which he describes was the only kind used anywhere until 1873, when Moses Quinby made the first bellows smoker that could be used with only one hand. Very few of our younger men can have an idea of the difficulties encountered by the older heads before the advent of practical bee-smokers and of comb foundation. We have often blown smoke upon the bees until we were dizzy with the work.

Friend Greiner's articles bear the stamp of experience, and are always welcome.—EDITOR.]

DR. MILLER'S ANSWERS

Send Questions either to the office of the American Bee Journal or direct to
DR. C. C. MILLER, MARENGO, ILL.
He does NOT answer bee-keeping questions by mail.

Queen-Excluders—Requeening

1. Will bees store as much honey by using a honey-board in an 8-frame hive? I have trouble by the queen going into the upper story.
2. What kind of a honey-board would you recommend?
3. Would it be necessary to use a honey-board on a 10-frame dovetailed hive?
4. We have a spring and fall honey-flow here. The queens quit laying before the fall flow, and do not begin in time to rear enough young bees to winter. Would requeening help this?
5. Would it be best to requeen twice a year; also what time of the year?
6. Please give me the address of a golden Italian queen-breeder that would be adapted for this part of Indiana, and who has no disease in his apiary?
7. Does any queen-breeder ensure his queens free from disease; if so, in what way? INDIANA.

ANSWERS.—1. I suppose you have reference to a queen-excluder. You will probably not be able to see any difference in the amount stored with or without an excluder if indeed there is any difference at all.

2. There is probably nothing better than the wood-zinc excluder. But if you are working for section honey you will find it not worth while to use an excluder, provided you use full sheets of foundation in sections. If you use small starters of foundation it will be better to use an excluder.

3. In this respect there is little difference between an 8-frame and a 10-frame hive, although the queen will probably be more inclined to enter the super over the smaller hive.

4. I wonder now whether you are not theorizing just a bit. If there is a fall flow enough to be called a flow, or enough for the bees to store any surplus from it, it's about a sure thing that it will start the queen to laying, so as to secure a crop of young bees for winter. Yes, it is easier to start a young queen to laying than an old one.

5. I never knew of any one who thought it paid to requeen twice a year.

6. You will find addresses of queen-breeders in the advertising columns; but I don't suppose one would be more adapted than another for any particular part of any State.

7. I'm not sure whether any one says so in so many words, but practically every queen is so ensured, for no honest man would send out disease with a queen and say nothing about it. And yet I suppose it might happen that disease would be thus carried sometimes without the sender being aware of it. The present tendency to make queen-candy with boiled honey, or with no honey at all, tends toward safeguarding against disease.

CHARLES CHANDLER AND PART OF HIS 100-COLONY APIARY AT EMPORIA, KAN.

Bees on the Hill or in the Valley

I have 7 colonies of bees located in a valley, and a neighbor bee-keeper has his bees on a high hill, perhaps 175 feet higher than mine. He says my bees have the advantage of his, as my bees go up hill empty and down hill loaded, while with his it is just the other way.

That is all right, and true as long as my bees go west or north, but when they go east they would have to go up first and then down on the other side, and I notice that they don't go very far that way. Now if I would place my bees on top of this hill I think they would go farther south and east than they do now. Most of the basswood is on the hillside, but the best clover is in the lowlands. Do you think it would pay to move my bees higher up for this reason? IOWA.

ANSWER.—It surely must be easier for a bee or anybody else to carry a load down hill than up. In actual practice I have some doubt whether the difference is enough so that a colony in the lower location would show a distinctly larger yield than one higher up. But the matter of distance may be a much more important factor. Within a distance of perhaps a mile and a half it is doubtful that distance counts for much. Be-

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yond that—possibly I should say beyond two miles—distance counts for a good deal, and if your source of supply is beyond that there would no doubt be a gain to move the bees accordingly.

Splints—European Foul Brood

1. Are those splints used by Dr. Miller for foundation supports manufactured by some concern; if so, where can I get them?

2. If caging a queen for a certain length of time, in case of European foul brood, stops the disease, should the disease not come to an end in fall, as all brood-rearing stops entirely for several months?

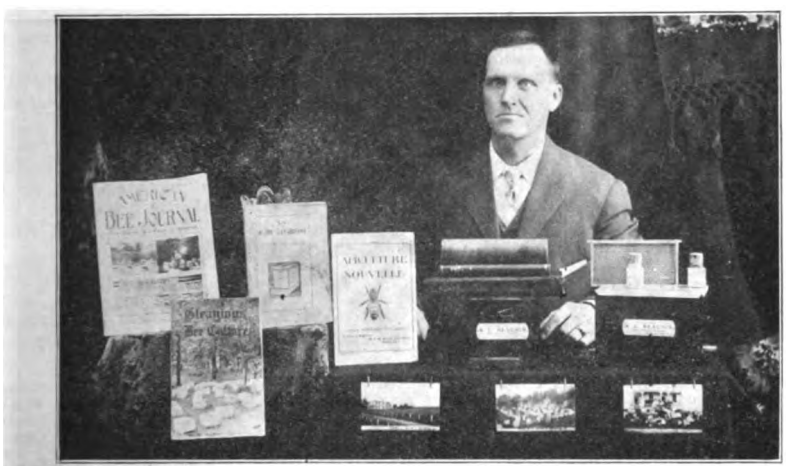
If an apiary has foul brood one season, will it be free from it next year? There are no young diseased larvæ from which the nurse bees can suck the juice and feed it to healthy ones the next spring. INDIANA.

ANSWERS.—1. The A. I. Root Company make them, and I think also the G. B. Lewis Company—possibly others.

2. The shortest answer to your question would be to say I don't know. And that's the truth. I don't know why caging a queen should stop the disease. If caging a queen stops the disease, I don't know why the winter's rest from brood-rearing does not stop it. But here is the important fact that I do know. I know that in a large number of cases cessation of brood-rearing for a week or so has stopped the disease. Note that I don't say in all cases, but in the large majority of cases. I don't *know* that in the great majority of cases the disease is conveyed from one cell to another by the nurse-bees sucking the juices of recently diseased larvæ. That's only a theory, but it is a pretty satisfactory theory until a better theory is advanced.

I think, however, that no one has advanced the theory that the disease is in all cases conveyed by means of larvæ that have been dead only a short time. It may in some cases be conveyed through spores in dried-up scales of larvæ that have been dead a long time. But I suppose these last cases are exceptional. Now, although I don't know all about it, if you will allow me to theorize, I'll tell you what I think is possible in the case you mention. In early spring or winter, when brood-rearing begins, there are no diseased larvæ present. But there are dried scales containing spores. One would expect that the disease would begin rather slowly from these. And observation confirms that supposition. In a colony which has not been badly diseased in the previous year, the first examination in the following spring shows very little disease—possibly none. Subsequent examinations will show it on the increase, although if I am not mistaken there are some cases in which a colony will remain healthy which has been slightly diseased the previous year. If a colony has been very badly diseased this year, next year you may look for it to start in at the very start with plenty of diseased larvæ, probably because of the millions of spores that are present.

Now, if there is anything that still puzzles you, if you will tell me what it is I'll help with an explanation—if I can.



A. L. Beaudin, of St. Chrysostome, Canada, with photograph of bee-journals and bee-books; his home and apiary, and a feeder of his own invention.

8-Frame vs. 10-Frame Hives—Special Locality

1. In a locality where there is a very small fall honey flow, but enough in the spring for them to begin storing a surplus by March 1, which is kept up until the last of June, do you think the 8 or 10 frame hive would be better? They are managed for comb honey.

2. In such a case do you think 8-frame colonies would store surplus sooner, and if so do you think the 10-frame colonies would catch up later on? CALIFORNIA.

ANSWERS.—1. I would chance the larger hive.

2. On the face of it, it might seem that the 8-frame hive would have its brood-chamber filled sooner, and so surplus would sooner be stored. In actual practice you will be likely to find out that it doesn't pan out that way. A good way will be for you to try both kinds side by side; or if you have 10-frame hives you could reduce some of them to 8-frames by the use of dummies.

Requeening Early in the Season

I have lately bought 16 colonies of black bees. They went into the cellar on Dec. 12 strong in bees and plenty of good, sealed stores. They are in fine condition at this date, but as the hives are of all sizes and shapes, good for nothing but kindling wood, I shall transfer to my dovetailed hives.

Do you think it would pay me to requeen them with good Italian stock early in the season? WISCONSIN.

ANSWER.—Requeening early in the season is sure to interfere at least a little with the building up of a colony, with the possibility of interfering a great deal in case there is some hitch in introducing. If your are requeening for the sake of having better stock to breed from, it may pay to do so early, even if it interferes greatly with the honey crop. But in your case you hardly want to interfere with the crop of this season. So, perhaps you will do just as well to leave the old queens until after swarming, at least, if not until near the close of harvest.

Bee-Bread in Honey

1. Can you see bee-bread in extracted honey?

2. How does it act when melted?

3. What makes honey form a yeast-like top when heated? I have had some honey do this. Is it bee-bread? I am told it is. CALIFORNIA.

ANSWERS.—1. Ordinarily, no. That is, you cannot see it with the naked eye, although in all honey, comb or extracted, I suppose some pollen can be seen, if a proper magnifying glass be used.

2. I don't think you can melt bee-bread.

3. I suppose it is effervescence, occurring more readily the thinner the honey is, and pollen may help in the process.

Bees in Box-Hives—No Honey Nor Swarms

1. I have a nice lot of bees, but they are all in the old-fashioned box gums. During the honey harvest I raise them ½ inch all around. Then I let them down in the fall and daub them up, only leaving room for a few bees to pass at a time. I fear that they do not get enough air. Do you think I could make an opening on the opposite side and give them plenty of air?

2. One colony keeps carrying out dead bees. What is the cause of this? Is it because they don't get air enough? or do they die of old age? I love my bees, and have had good luck with them. I have not lost a colony in seven years. I am afraid I will lose two this winter.

3. What is the reason my bees do not swarm? I have not had any swarms in four years. They are always rich and very strong in the early spring. I am going to buy some up-to-date hives this winter for next spring, so I can increase them. I will make them swarm. WEST VIRGINIA.

ANSWERS.—1 It is not easy to say whether your bees have enough air or not. You say you let down the hives in the fall and then daub them up (the entrances I suppose), and "only leave room for a few bees to pass at a time." The question is whether that "few bees" means 3 bees, 20 bees, or more. I would rather suppose it to mean not more than half a dozen bees, and that might mean an entrance of not more than half a square inch. I should say that was quite too small an entrance. But you say you have not lost a colony in seven years; and with such success it can hardly be that the entrance is so small. At any rate, so long as you winter perfectly it would hardly seem the entrance can be much at fault. But if the entrance is less than the equivalent of about 2 square inches, it will be easy to increase the amount of air by making a hole as you suggest at the bottom of the hive at the opposite side, although the usual way would be to make the entrance at the front larger.

2. It is not likely that lack of air makes the bees carry out their dead. A good many bees will be dying off all the time from old age, especially will this appear more prominent if breeding stopped early.

3. I don't know why your bees don't swarm. Most bee-keepers would be de-

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lighted to have as little swarming as possible. There is a difference in the bees themselves as to swarming, and it may be that you are so fortunate as to have a strain of bees little inclined to swarming. It may be that your hives are such as to allow the queens great abundance of room, in which case there would be little swarming. There may be some other reason that I don't know.

Bee-Keeping in Newfoundland

I wish to try bee-keeping here, and would like to know what kind of bees would be most suitable for this climate. At present there are none in Newfoundland (save the wild bumble-bees). We have plenty of sunny, hot weather in summer, when they would do all right, but our winters are rather long. Still, I believe I could manage them all right, as I can house them during the winter. NEWFOUNDLAND.

ANSWER.—I wonder if you may not be mistaken about there being no bee-hives in Newfoundland. I don't know anything about it, only it would be very strange if no one had introduced them before this. Anyway you are to be congratulated if there are none near you, even if they may be farther away. As there are none within a few miles you will be able to keep pure stock, at least for a time. You can hardly go amiss to get Italians, preferably the leather-colored, as the darker ones are called.

Bees are kept successfully in colder climes than yours. The severe winters ought to cut no figure, for cellaring offers the way out.

It is to be hoped we shall hear from you after you get started.

A Winter and Summer Bee-House

I have in a convenient place a house 5 feet wide by 12 feet long. I can put a hive at each end, two on one long side, and one on the other long side (5 hives in all), leaving room for a door on the side where I put only one hive. I would put the alighting-board on the outside for each hive, and cut a notch something like ½x10 inches for each entrance. How would they do in the summer? Would they gather as much honey as they would placed on separate stands? What has been your experience in bee-houses *vs.* placing hives on separate stands? KENTUCKY.

ANSWER.—I have had no personal experience with houses such as you propose. Years ago there was much said in their favor, and quite a number were in use. The greater number of those who had them, however, gradually gave them up, if I am not mistaken, although a few still think well of them. On the face of it, it looks as if it should be just the thing for winter, but I think the general verdict was against such houses for wintering. For summer there is the objection that the bees are not so promptly induced to fly out as they are where there is a better chance for the sun's rays to enter the hives. Yet in actual practice you will not find much difference.

Old and Young Worker-Bees as Drone-Layers

Do old bees become drone-layers, or do only the younger ones "go astray?" NEW JERSEY.

ANSWER.—I don't know. But I have a strong impression it's only the younger ones. Some have advanced the theory that laying workers, in their larval existence, have been located near queen-cells, and so have been fed some of the royal jelly as a sort of overflow. If that were the true theory, of course there would be no drone-layers except those which started in at the business early in life. But I wouldn't take much stock in that theory. Nurse-bees are not so careless as to slop around the soup-dishes in that sort of style. Besides, if that theory were correct, laying workers would be just as likely to appear at all times after young queens are reared, whereas we know that with most races of bees no laying workers are reared unless a colony has been hopelessly queenless for some time. I don't remember that I ever saw any other explanation given, but if you can't find anything better I'll offer one of my own for what it is worth. It is that when a lot of nurses are loaded up with pap, and only a few larvæ are left unsealed, these few are fed so heavily that they are developed sufficiently to do something in the egg-laying line. If any reliance can be put upon this theory it is still true that no bee could start in as a laying worker after it becomes old.

Moving Bees by Wagon and Rail—Spreading Brood—Spring Work

I contemplate moving soon, and wish some advise about preparing my bees for the trip. Will have 40 miles of very rough mountain road, then on the train for 50 miles. Bees in modern hives and light in stores.

1. Will I need any packing over and under the frames to keep them solid enough?
2. Will they need more ventilation than the usual entrance?
3. How can one tell when bees need additional ventilation when in transit?
4. I wish to rear queens as soon as practicable in the spring. How can I tell when the proper time comes?
5. How warm should it be by the thermometer when it is safe to handle brood in ordinary manipulation?
6. What are the indications when it is safe and profitable to spread the brood, *i. e.*, place an empty comb in the center?
7. When a 10-frame hive is full of brood, and the harvest 30 days off, is it best to add another brood-chamber above or strengthen the weak colonies?
8. How about it if the harvest is just at hand?
9. How can a person who has contracted the "bee-fever" expect to come out alive if he does not get a good bee journal?

Your answers to questions have helped me wonderfully. KENTUCKY.

ANSWERS.—1. That depends. If you have self-spacing frames, they ought to travel safely just as they are. If they are loose-hanging frames, they must be secured in some way so they will not shake around. One way is to thrust down at each end of the hive, between each two frames, a small stick with a small wire-nail driven in at one end, so that the stick shall not sink down into the hive. But no sort of packing is needed either over or under the frames.

2. Again, that depends. It depends upon what the "usual entrance" is, and what the temperature is. If your entrances are like mine, 2x12 inches, no further ventilation will be needed unless it be quite warm, say something like 70 degrees. But if your entrances, like many entrances, are only ⅜-inch deep, then you should give extra ventilation unless the temperature be less than 50 degrees, and even at that there might be some danger. The larger the entrance the less need for extra ventilation.

3. Not so easy to say. They will be very noisy, but they'll be noisy anyhow when being jolted over rough roads. When suffering for want of ventilation, they may become so heated that you will easily recognize the increased heat by holding your hand at the entrance or any other point where air may escape. But it is rather dangerous to let them be heated up to that degree. The safe way is to give them a good showering with water whenever you are at all suspicious they are too warm.

4. Not until about the time the most advanced colonies begin to start cells of their own accord. Or, to take it on another basis, not until bees are gathering enough so as to begin building comb. You can begin a good deal sooner than either of those times, but your queens will not be worth rearing.

5. About 70 degrees. Instead of going by the thermometer, it may be better to say, don't handle bees any time when bees are not flying freely. But if you merely lift out a frame and quickly return it, as when you want to know in the spring whether brood is present, then it may be safe at 55 degrees or less.

6. For some years I have been of the opinion that for me there is *no* time when it is profitable to spread brood. Early in the season, at the time when we want bees to build up as fast as possible, the bees of their own accord have all the brood they can cover. In that case, if brood is spread it can result only in chilled brood, thus hindering instead of helping the building up. I don't know whether the bees of others are different or not. If at any time your bees are covering combs that have no brood or eggs at the outer part of the cluster, it ought then to be safe and profitable to spread. But be sure you're right before you go ahead.

7. Strengthen the weak colonies. Perhaps not all of them, but as many as you can make strong enough for the harvest.

8. I don't know. Perhaps in that case it may be as well to do neither, for generally with the beginning of harvest there is no further spreading of the brood-nest, and the supers will give all the extra room needed.

9. I don't know.

Queens Produced by West's Cell Protectors and Cages—Difference in Weight of Honey Sections

1. Some one has said that queens developing from cells given to colonies by means of West's cell protector or queen cages do not do well. In 1912 I used this method considerably, and it seems to be the case as asserted. What is your opinion as to this? It looks a little to me as though such colonies fill up the brood-chamber well, but do nothing in the supers. In the two cases that I tried West's protector, the colonies reared their queen from those queen-cells. The colonies appeared so quiet as to suggest their dying off from queenlessness; but when looking the colonies over preparatory for wintering (outside), queens were found, and the brood-chamber well stocked with honey.

I made it quite a practice, in looking for surplus queen-cells, to put the best looking ones in the West protector and introducing the latter with cells. I have a little stand for keeping the cells in the protector in an upright position. I have gotten to be prejudiced against the "protectors."

2. It rather displeases me that my sections of honey (1912), while *looking well*, averaged in weight only 13 ounces, while about all the others I weighed in this neighborhood weighed at least 14 ounces, and sometimes more.

Are there any reasons evident for such discrepancy? In 1912 I had five times as much honey than in 1911. PENNSYLVANIA.

ANSWERS.—1. Some European authorities claim that the inmates of the cells receive a benefit from the close contact of the bodies of the bees, which benefit is lost when cells are in nurseries or cages. The Stanley nursery ought to be an exception, for in that the bees are allowed free access to the cells. One would naturally suppose that it would be more harm to a cell from long than from short confinement in a cage. Moreover I should expect that the young queen would be hurt as much by an hour's imprisoment immediately after being sealed as it would by a day's imprisonment immediately before emerging from its cell. Indeed, I suspect that the convenience of a nursery may overbalance all the harm of the confinement if a cell be not caged until within a day of the

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hatching of the virgin. At any rate, I have had some excellent queens after such confinement. But I should expect a poor queen from a cell caged immediately after being sealed.

2. You will probably find that in flush years, when honey comes in rapidly, combs will be filled out more plumply than in a slow flow, perhaps because in a slow flow the bees have more time to build wax and seal combs. You will also find that they will fill combs more plumply if crowded for room. Like enough you gave the bees more surplus room than your neighbors did. Taking one year with another, you are probably the gainer by it.

REPORTS AND EXPERIENCES

Good Results Last Year

I did very well last year. With 14 colonies I increased to 19, and took off 610 pounds of honey, leaving over a super on each hive, as I came near losing many by starvation last spring. W. ULMER MOORE.

Lott, Tex., Feb. 9.

Bitter Honey

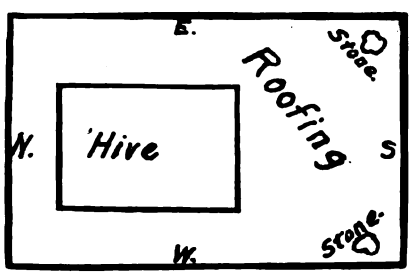
Some 6 or 8 years ago all of our honey was bitter. I noticed at the same time that there was honey-dew on the box-elder trees. By rubbing the leaves of the box-elder on my tongue I noticed the same bitter taste that was in the honey. I saw the bees sucking the leaves of the box-elder. I have not had any bitter honey since.

A. M. BROYLES.

Rhea Springs, Tenn., Jan. 10.

Keep Weeds Down Around Hives

To keep weeds down in front of and around hives, I find nothing more satisfactory than common roofing felt ("rubber roofing," as it is sometimes called). Cut in 4-



foot lengths (or longer, if desired), place upon the ground, long way north and south, putting the hive in the center near the north end. It will keep the weeds down, make it easy to see the clipped queen at swarming time, keep the hives off the ground, and lasts for years. Try this where cinders are not easily obtained. Stones at the southwest and southeast corners will keep it from being blown up. GEORGE F. WEBSTER.

Sioux Falls, S. Dak.

Missouri a Leading Honey State

According to the last census report, Missouri has 40,110 persons keeping bees in the State, but as no statistics were taken in cities and towns, we should think the figures should be 45,000 at the least; the number of colonies were given as 203,560. The honey gathered in one year would probably be something over 6,000,000 pounds, valued at about $800,000, and taking that with the value of the bees, it would amount to about $1,500,000.

According to the report, there is about one in twenty farmers who keep bees. Missouri is ranked second in the number of colonies, but fourth in the amount of honey obtained. As some of the other States have large numbers of up-to-date bee-keepers, and as Missouri has so many farmers keeping bees that do not use modern methods, we think that our State makes a most remarkable record, and shows that it is adapted to bee-keeping. We have some extensive bee-keepers in the State, but the most of the bees are kept in small numbers in a yard, throughout the State. Texas is rated as first in bee-keeping, but as Texas is about four times as large as Missouri, we think our State makes the best record comparatively.

By the way, we wish to speak of what is really a text-book on bee-keeping, sent to us from Texas by Louis H. Scholl. It surely fills the bill so far as we have had time to examine it, and the State of Texas is to be congratulated in having this fine work, and I am sure many of the other States would do well to follow Texas in her example. We have before us a bulletin issued by our own State in 1905, which doubtless has done much good for bee-keeping

We now have a bill introduced into the House of our Legislature, asking for some changes in our foul brood law. We hope to get it into a law, as it is much needed in our State, and if we can get the law we hope to better cope with diseases of bees. The appropriation for this work in our State has been too small to pay for what is needed. If the amendment asked for is passed, we hope to have better and more up-to-date bee-keepers in our State than we now have.

Mexico, Mo. J. W. ROUSE.

Bees Wintering Well in Iowa

Bees are in fine condition here, and good prospect for white clover next season. I opened a hive today, packed on the summer stand, and found sealed brood 4 inches across, with a circle of eggs and larvæ more than an inch wide around it. They have quite a quantity of sealed honey in the hive. I look for a strong colony in this hive when fruit blossoms come. J. L. STRONG.

Clarinda, Iowa, Jan. 25.

Managing Weak Colonies

Last spring I had some weak colonies. What was I to do with them? I got my Bee Journal and found out how to manage weak colonies. Last summer I obtained 1505 pounds from 37 colonies; in 1909 I obtained 3500 pounds. This year I sold my crop for 17 cents per pound. I have an order filed here in my office for 3000 pounds at 17 cents, but I can not fill it.

Not any kind of honey sells under 10 cents here. I produce bulk comb honey, or chunk honey as you please to call it.

I certainly do enjoy reading the different opinions of my brother bee-keepers on the kind of honey to produce for the most profit.

Galax, Va., Dec. 26, 1912. G. F. JONES.

Wintering—Producing the Crop—Tin Separators

I wintered 25 colonies, increased them to 37, and produced 400 pounds of Spanish-needle honey. The weakest colonies I winter in a concrete cellar under my dwelling house. The temperature is from 45 to 52 degrees. I never lost any in the cellar. The strong ones I winter out-of-doors, with shavings on top, and a telescope hood placed over them. Last winter was very cold, and below zero quite often. I lost one-third of those I had out-of-doors.

Before swarming I confine the queen under an excluder with one frame of brood, and the rest drawn-out combs. The rest of the brood in the upper story, and on this supers are used. I extract the honey in the fall at the end of the crop.

With a double brood-chamber I found after the harvest that the upper story had the most honey, and the lower story with the queen and brood had not stores enough to carry them through the winter. I have exchanged frames, but that is a mean job, for as a rule bees are generally cross when bothered after the harvest. I am thinking of exchanging stories after the young bees are all hatched. Can any experienced bee-keeper give light on this question?

I rear all of my queens. I fix up my supers with starters in the winter. I use tin separators the full height of the section-holders. They are more expensive than wooden ones, but in the long run they are the cheapest. To clean them, I put an old wash-boiler on the stove, throw them all in, and let them cook thoroughly, then let them remain until the water is cold. The wax comes to the top. WM. SASS.

Concordia, Mo., Jan. 29.

Knife and Journal Pleases

I am very well pleased with the bee-keepers' knife you sent me some time ago. It seems to me the American Bee Journal is getting better right along. I could not do without it.

In the last number of this Journal I mentioned a crop of 3200 pounds of honey from 52 colonies. A misprint caused me to say 200 pounds from my bees in 1912.

G. A. BARBISCH.

La Crescent, Minn., Feb. 11.

Caucasian Bees All Right

The Caucasian bees are all right in my estimation. They are good, early brood-rearers. I had swarms May 8. They seal their

IRA WALTON AND A PORTION OF HIS CAUCASIAN APIARY.

American Bee Journal

honey evenly and snow-white, and will work when other bees do nothing. But as to their gentleness I do not find them as gentle as some claim. I am satisfied they are a good all-around bee. IRA WALTON.
Gotham, Wis., Jan. 8.

Finding Bee-Trees

The front cover picture of this Journal shows part of the tree cut away, the swarm exposed to view, and me hunting for the queen. After removing 30 pounds of honey and three frames of brood which they had built in two months, I brushed the bees into the hive, used smoke on them while doing this.

The best way to find bee-trees is to follow up little streams or creeks in the woods during the dry season. If there are any bees around, you are sure to find their watering place. When you have found it, watch

B. F. SCHMIDT CUTTING A BEE-TREE.
This swarm was followed from his yard in June, 1912, and recovered 2 months later.

where they go. If they fly low down they are not far, but when they go high up in a circle their home is quite a distance. Watch several bees to be sure you get the right line, and then look at every tree as you go, low and high, and you will soon find them.

Another way to locate bee-trees is to set a bait of thinned honey on a stump or rock, and near it burn some old combs to attract the bees. If there are any bees around they will find the bait in an hour, and you can watch the direction of their flight easily.

The month of October, or during a dry season, is the best time to hunt bees with bait, as at that time there are usually but few if any flowers for the bees to work on.
B. F. SCHMIDT.
N. Buena Vista, Iowa, Oct. 12, 1912.

Crop Below the Average

Our bees for the first time in 10 years did not come up to the average. I took some 3500 pounds from 20 colonies—all comb honey. The honey season closed about Aug. 25, and after that no more honey was gathered. All through September it snowed and rained.
J. D. KAUFMAN.
Kalispell, Mont., Jan. 28.

The Bee Journal a Great Help

The Bee Journal has been a great help to me, and I shall recommend it to all bee-keepers. HENRY C. SCHUCHERT.
Elgin, Ill.

Apiary Destroyed by Fire

The day after Christmas a fire started some 3 miles from my old home in San Diego county. With an eastern gale it ran over three ranges of mountains, finding one of my best apiaries, where it burned the honey house and 43 colonies of bees. It has badly injured or destroyed our bee-range. Under the circumstances we have sold some 500 colonies and partly gone out of the bee-business for a while until the sages, etc., grow again

Everything was dry as tinder, for they had no rain until three or four days ago.

The greatest cold I have known since I left the East in 1875, has covered California and hit the oranges and lemons very hard, probably ruined half of the crop. Orange and lemon growers smudged every night for over a week. They took 75 to 100 carloads of oil out every day and made solid clouds of smoke, and yet lost.
MAJ. GEO. F. MERRIAM.
Los Angeles, Calif.

A Tall Bee-Tree

Is this the tallest bee-tree? T. F. Strain, of Tacoma, Wash., told me he cut a large tree in 1879, to clear the ground. He did not know it was a bee-tree. It was 350 feet high, and was 8 feet across the stump. After being sawed off, the tree stood for two weeks before it fell, as the wind had to blow before he expected it to fall. It fell late in the afternoon, and at supper time a bee was seen on the window, the first they had ever seen in that country. L. W. BENSON.
Galena, Kan.

California Prospects

To date this has been the driest season known in southern California for many years. Since July 1 but 1.66 inches of rain has fallen, and dry winds have absorbed the moisture, so that our hills are as brown as in mid-summer. Last week a freeze destroyed millions of dollars worth of citrus fruits, young trees and vegetables. Prospects for the apiarist are not encouraging.
EUGENE BAKER.
Los Angeles, Calif., Jan. 14.

Advantages of Redwood Lumber

I am a builder by trade, and have used many thousand feet of redwood lumber, and my experience is that it is far superior to pine in a great many ways. Most of the material that is exposed to the weather in the buildings of wood in California is redwood, with the rough side exposed to the weather. While it may not look quite so nice to an easterner, it is all the go here.

First, the rough side does not attract the sun's rays near so much as does a surfaced board, which will help to keep the board from warping, and also help to keep a cool hive.

Second, paint will last more than twice as long, and will not peel, blister nor crack.
Puente, Calif., Jan. 10. H. M. HESS.

Good Crop in Illinois

The bees worked good, and there was considerable swarming the past year. My son started an apiary and had fine success for a beginner. Our best colony produced 214 pounds of extracted honey. The strong colonies produced five supers.
Chicago, Ill., Jan. 10. TIM O'DONNELL.

Fine Prospects in Vermont

Bees are having an open winter here. We have had but 2 inches of snow to date. I expect to see the bees winter the best they have in years. We are looking for a big yield. I never saw clover look better than it did last fall. My average was 40 pounds per colony, but I had to feed some in the fall. M. C. YOUNG.
Rutland, Vt., Jan. 30.

Mild Winter in France

The year 1912 will count among the poorest for bee-culture in France, and especially in Brittany, where the winter losses were great, owing to short stores.

We are having a very mild winter. On Jan. 6 I saw bees bringing in pollen gathered on furze blossoms. The hazel is in bloom. I also saw yesterday some swelling buds of pear blossoms. ETIENNE GIRAUD.
Le Landreau, France, Jan. 15.

[The above locality is in Eastern France, near the River Loire, at the 47th degree of latitude.—EDITOR.]

Bees in South Dakota

I was in southeastern South Dakota three weeks last September. They are getting lots of bees up there. It is going to make a a good bee-country, lots of hearts-ease, white clover and alfalfa.

The bees here were in fine condition for winter, and they had a fine flight on Christmas day. I. N. ARNOLD.
Kalona, Iowa, Jan. 8.

Classified Department

[Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

BEES AND QUEENS.

NUTMEG ITALIAN QUEENS, leather color. After June 1, $1.00. A. W. Yates, Hartford, Conn.

GOLDEN QUEENS that produce 5 and 6 band bees. Untested, $1.00; Tested, $3.00.
1A0t Robert Inghram, Sycamore, Pa.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
1Atf 70 Cortland St., New York City.

IMPROVED golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers Send for price list. E. E. Lawrence,
1A8t Doniphan, Mo.

PLACE YOUR ORDER NOW for early delivery. Untested Queens, one for $1.00; 6 for $5.40. Tested Queens, one for $1.50; 6 for $8.40. Write for prices of Nuclei and full colonies.
W. J. Littlefield, Little Rock, Ark.

HOW ABOUT those beautiful untested three-band Italian queens for 1913? We have them and know how to rear them; 30 years' experience. We rear queens that make bees that gather us heavy crops of honey, and we will send you the same kind at 75c each; $4.25 for 6; $8.00 per dozen. Safe arrival and satisfaction always guaranteed.
Rialto Honey Co., Rialto, California.

ITALIAN QUEENS ONLY—Untested, $1.00; sel. tested, $1.50. Bees by pound and half-pound. Plans, "How to Introduce Queens," 15c; "How to Increase," 15c; or both 25c. Descriptive list free. 3A2t
E. E. Mott, Glenwood, Mich.

GOLDEN QUEENS that produce Golden Workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1.00 each; Tested, $2.00: Breeders, $5.00 and $10.00.
2Atf J. B. Brockwell, Barnetts, Va.

QUEENS—Improved red-clover Italians, bred for business; June 1 to Nov. 15. Untested queens, 75c; select, $1.00; tested, $1.25 each. Safe arrival and satisfaction guaranteed. 1A1y H. C. Clemons, Boyd, Ky.

GOLDEN and 3-band Italians, also gray Carniolan queens. Tested, $1.00 each; 3 or more 90c each. Untested, 75c each; 3 to 6, 70c each; 6 or more, 65c each. Bees per lb., $1.25; nuclei per frame, $1.50. A discount on orders booked 30 days before shipment. 1Atf
Bankston & Lyon, Buffalo, Leon Co., Tex.

QUIRIN'S famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.
Quirin-the-Queen-Breeder, Bellevue, Ohio.

GOLDEN and 3-band Italians, also gray Carniolan queens. Tested, $1.00 each; 3 or more 90c each. Untested, 75c each; 3 to 6, 70c each;

American Bee Journal

6 or more, 65c each. Bees per lb., $1.25; nuclei per frame, $1.50. A discount on orders booked 30 days before shipment. 3Atf
C. B. Bankston, Buffalo, Leon Co., Tex.

MOORE'S Strain and Golden Italian Queens. Untested, $1.00; six, $5.00; twelve, $9.00. Carniolan, Banat and Caucasian Queens, select, $1.25; six, $6.00; twelve, $10.00. Tested, any kind, $1.50; six, $8.00. Choice breeders, $3.00. Circular free. W. H. Rails, Orange, Calif.

ONE of our customers J. A. Carnes, M. D., Mt. Carmel, Pa writes: "Your bees are evenly marked; all golden but the tip. They are the most GENTLE bees I ever handled." Untested queens, $1.00 each. Send for wholesale prices. C. W. Phelps & Son,
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WE WILL requeen all our 2000 colonies this spring. We offer the one-year-old queens removed from these hives at 40 cents each, any quantity. Italian stock, delivered any time before June 1. Untested queens, this year's breeding, 60 cents each; delivery guaranteed. Book orders now.
Spencer Apiaries Co., Nordhoff, Calif.

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WANTED—Comb and extracted honey, and beeswax. Write us. Hildreth & Segelken,
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WANTED—Comb, extracted honey, and beeswax. R. A. Burnett & Co.,
6A12t 173 S. Water St., Chicago, Ill.

RASPBERRY-CLOVER HONEY in new 60-lb. cans at 9c. Sample, 5c. 3Art
J. D. Hull & Bro., Honesdale, Pa.

WANTED—Choice extracted white and amber honey in barrels or cans. Send sample and price delivered f. o. b. Preston.
8Atf M. V. Facey, Preston, Minn.

FOR SALE.—Water White Alfalfa, Light Amber Alfalfa. Put up in any size packages, any quantity. Write for prices.
11Atf Dadant & Sons, Hamilton, Ill.

FOR SALE

FOR SALE—50 to 300 colonies, 8-frame; good condition. E. F. Atwater, Meridian, Idaho.

FOR SALE—One hundred and twenty-five eight-frame hives, and five hundred supers with extracting frames, mostly unused, to be sold at a bargain. Philip Goode,
3A3t Lenexa, Kan.

FOR SALE—About one hundred black and hybrid Queens. Will ship any time after March 1st at 40 cts. each, or 12 or more 35 cts. each. D. E. Brothers, Attalla, Ala.

FOR SALE—An ideal bee location, consisting of house, barn, and 40 acres of land. For further particulars, write to 3Att
J. J. Zimmermann (Administor), Alma, Wis.

FOR SALE—Empty second-hand 60-lb. cans—two cans to the case, good as new, 25 cents per case. C. H. W. Weber & Co.,
2146 Central Ave., Cincinnati, Ohio.

FOR SALE—304 colonies of Italian-hybrid bees at $4.00. Fine location for comb honey. Right of location to purchaser. Please don't write unless you mean business. 3Att
J. B. Marshall, Big Bend, La.

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INDIAN Runner Ducks, light fawns, also dark penciled, white eggers, $1.00 and up.
R. O. Dickson, Box 61, La Harpe, Ill.

FOR SALE—Buff Orpington eggs, pure bloods: $1.00 for 15. Satisfaction guaranteed.
2A1y W. H. Payne, Hamilton, Illinois.

FOR SALE—White-egg strain Indian Runner Ducks, White Orpingtons, White Wyandottes, Houdans, Bronze Turkeys. Ducks. $1.25 each. A. F. Firestone,
Broadwell, Athens Co., Ohio.

MISCELLANEOUS

WE HAVE THE QUEENS READY NOW, and you can have them by sending us $1.00 for one Untested; $5.40 for 6; $1.50 for one Tested; $8.40 for 6. Write for prices of Nuclei and full colonies. W. J. Littlefield,
Little Rock, Ark.

THE PRINCIPAL TROUBLE with honey-production is bad queens. We know you all wish to harvest large crops. The best of untested three-band queens, 75c each; $4.25 for 6; $8.00 per dozen. Safe arrival and the Golden Rule to all customers. We know how. No order too small or too large for our prompt attention. We can send them quick
The Golden Rule Bee Co., Riverside, Calif.

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Medium Brood, per pound	.50
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Satisfaction guaranteed or money refunded. R. H. Schmidt,
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HELP WANTED—Can take two or three young men, clean in mind and body, for the season of 1913. Board given, and more if we both do well. Address, R. F. Holtermann,
2A3t Brantford, Ont., Canada.

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BEES WANTED—Could take a Carload of Bees in spring: prefer Langstroth hives, and Italian Bees, but open for others. Give particulars. Address, R. F. Holtermann,
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WANTED—A good honey location with or without bees. Want to trade land for bees, residence and cash.
D. E Lhommedieu, Colo, Iowa.

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APIARIES: Glen Cove, L. I.

WESTERN QUEENS

3-band long-tongued Italians

Prices for May delivery: Untested, 1, 90c. 6, $4.80; 12, $9.00. Tested, 1, $1.35; 6, 6.50; 12, $12.00. Satisfaction guaranteed or money back. "A trial will convince."
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The Opfer Hive-Entrance Bee-Feeder.—In the spring we must feed the bees to have them strong for clover-bloom. With all the present feeders this is a troublesome job—either the hive-bottom or covers have to be taken off every time we feed. With the Entrance Feeder shown herewith, all you have to do is to push it in at the hive-entrance and leave it there until there is no more need of feeding. It contracts the entrance, and that is what you want in spring. The size of this feeder is 7x8 inches, and ¾ inch deep, and holds 5 ounces of feed. You can feed 100 colonies in about 25 minutes.

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I have used 75 of these feeders about 3 years, and today they are as good as ever. With proper care they will last a life-time.

In spring or in fall most bee-keepers neglect to stimulate brood-rearing—one of the most important things in having strong colonies and good wintering. It does not depend so much upon the amount of feed as it does upon regularity every night, unless the weather is too cold, and you will wonder where your strong colonies come from.

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3. It reaches where the bees can get at the feed even in cool weather.
4. It feeds the right amount.
5. It will not cause robbing.
6. It will not disturb the colony while feeding.
7. It permits quick work.
8 The bees will not drown in it.

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Bee-keepers who buy Queens in dozen lots or more should get their orders booked early. The breeder can make shipments more nearly as desired.

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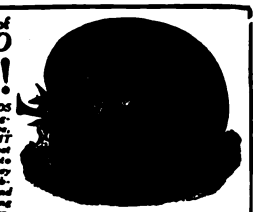

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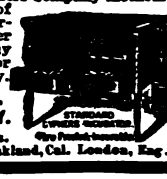

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The well known quality of Root's goods hardly needs mention here. We are not content with making supplies "good enough." They must be just right and a little better than necessary to answer the requirements of our standard. Hives, frames, and sections are uniformly acurately cut and finely finished. From the machine shop to the packing and shipping room every detail is carefully cared for to ensure the entire satisfaction of every customer. Extractors, smokers, honey-knives, veils, gloves, honey-tanks, every thing used in the smallest yard or the largest apiary is here ready for your use. Honey labels, letter heads cards, etc., used by bee keepers made to your order promptly. Special catalog for these on request.

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Los Angeles, Calif.
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Untested - - $1.00
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Breeders $3 to $5.00

We have 50 Golden and Three Band Breeders. Can mail from April 1 to 15. Place your orders now. Address,

JOHN W. PHARR,
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Texas Queens are sure to please,
Italian, Carnielan, Banat,
Pure, vigorous and no disease,
You should remember that.

When you wish to order a queen
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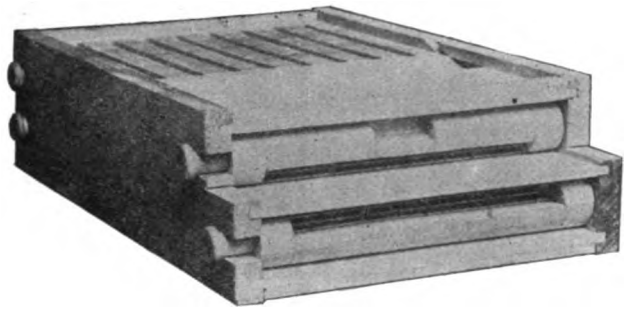

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Your Name and Address will be put on one side of the handle as shown in the cut, and on the other side a picture of a Queen-Bee, a Worker-Bee, and a Drone-Bee. The handle is celluloid, and transparent, through which is seen your name. If you lose this Knife it can be returned to you, or it serves to identify you if you happen to be injured fatally, or rendered unconscious. The cut is the exact size; it is made of best steel. When ordering be sure to write exact name and address. Knife delivered within two weeks after we receive order.

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FOR SALE.—The 3-band queens are of the A. I. Root Co.'s improved long-tongued bees which have proven themselves to be the best of honey-producers. The Goldens are good bees bred for beauty. I use the Doolittle and Miller plans for queen-cells. One untested queen, 75 cts.; 12, $7.50; 25, $13.50; 50, $25.00; 100, $45. Will be ready by April 1, or sooner. Double this price for tested queens to be sent the first of June One lb. of bees, $1.00, with the price of queen added: 2 lbs., $1.75, with price of queen added. One-frame nuclei, $1.50; 2-frame, $2.50; 3-frame, $3.50. To each nucleus add the price of queen. No personal checks accepted. All queens arriving dead will be replaced. 1Atf

J. B. ALEXANDER, CATO, AR K

American Bee Journal

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Have been manufactured in our plant at Falconer, N. Y., for nearly forty years, becoming more popular every year, on account of the superiority of workmanship and material put into them to produce the goods. **"Falcon"** supplies are sold all over the world, and universally live up to the **"Falcon"** guarantee of "Satisfaction or money back." If you have not already looked up your wants for this season it would be a good plan to do so now, and let us quote you on your list of requirements. It takes a lot of time to put supplies together, and by purchasing hives and supplies now, it will give you ample time to get them in order before the rush.

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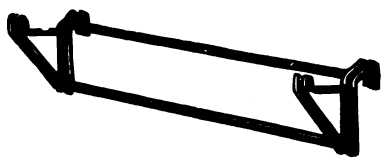
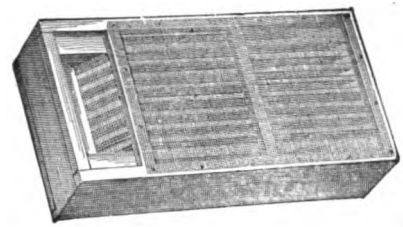
Fits to side of hive for hanging the frames during manipulating. Price, each, 25 cts. Postage east of Mississipppi, 9 cts.; postage west of Mississippi, 12 cts.





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Say, friend Tyrrell, you have besieged me with letters and cards from the request you made to your readers on page 479. Well, I never saw or heard of such a flood of mail. I never had any idea that you had so many subscribers before, and, too, many of them write the best letters I believe I ever received. Well, it just did me good to look them over, and I wish you could have been here and gone over them with me.

And now I want to thank you for what you said, and I assure you that as soon as possible I will return the favor, not only to you, but your many interesting readers who have written so many good and cheering letters to me. I declare I don't know just how to express myself over the matter, but I must feel something like a great "big hearted" fellow feels at a good old-fashioned hand-shaking at the close of a good meeting, when the good spirit is at its flow. J. J. WILDER.

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He said you can attain to royalty by loving sweets.

"He who knows what SWEETS
.... are in the ground, the waters,
the plants, the heavens, and how
to come at these enchantments, is
the rich and royal man."

"HOW to come at these?" Aye, there's the rub.

How many people miss them! and perhaps some of these many, strange to say, *keep bees*. Want to know how? Send $1.00 for a year's subscription to

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Please mention Am. Bee Journal when writing.

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Will be ready to take care of your queen orders, whether large or small, the coming season. Twenty-five years of careful breeding brings Laws' queens above the usual standard; better let us book your orders now.

Tested queens in March; untested, after April 1st. About 50 first-class breeding-queens ready at any date.

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This fine 90c Honey-Spoon and the American Bee Journal for one year—both for only $1.75. Send all orders to the American Bee Journal, Hamilton, I

American Bee Journal

HONEY AND BEESWAX

CHICAGO, Feb. 17.—Comb honey has sold freely during this month, and stocks have been reduced, and if this demand keeps up during the coming month we are of the opinion that the yield of 1912 will practically be all consumed before that of 1913 is in evidence. We think the excellent quality of honey has been the main factor in the large volume of sales, many retailers saying they have sold more honey this winter than they have for quite a long time, as people will come back for some more of the same kind they had before.

Extracted is moving off steadily and may clean up. Prices on comb has varied, and is lower by 1@2c per pound than it was in September and October, and it is too late in the season now to expect any advance in price unless the crop is actually about exhausted. Beeswax remains steady at from 30@32c per pound according to color and cleanliness. R. A. BURNETT & CO.

NEW YORK, Feb. 15.—The market is practically bare of comb honey of all grades, some few small odd lots are coming in yet, and find ready sale at 14@16c for white, and 11@13c per pound for dark and amber, according to quality and style of package. The market for extracted honey has been very quiet during the past two months, and we do not see any indications for a better demand, as the supply is more than ample to meet the demand. California light amber sage, which was reported to be of very short crop in the beginning of the season was held at high figures, and now it is being offered quite freely with no buyers. West India honey is arriving very freely with very little demand, and prices are declining right along the line. We quote California sage, light amber, at 7½@8c per pound; California alfalfa at 6@6½c per pound, and West India at 73@75c per gallon.

HILDRETH & SEGELKEN.

LOS ANGELES, Feb. 15.—There is very little business in California honey at present, owing principally to the small stocks on the Coast. These are in the hands of holders who are not forcing sales, and the demand is correspondingly light. We quote the market as firm but quiet: Light amber sage, 6½@6¾c; water-white alfalfa, 7@7¼c. All f. o. b. Coast with $1.00 freight rate by rail. Light amber sage, 6¾@6⅞c; f. o. b. steamer at San Diego, with 60c rate to New York via Tehuantepec. HAMILTON & MENDERSON.

KANSAS CITY, MO., Feb. 14.—The supply of both comb and extracted honey is large. The demand fair. We look for a better movement from now on. We quote as follows: No. 1 white comb, 24 section cases, $3.10 to $3.25; No. 2, $3.00. No. 1 amber, $3.00; No. 2, $2.50 to $2.75. Extracted, white, per pound, 8@8½c; amber, 7@7½c. Beeswax, per pound, 22@25c.

C. C. CLEMONS PRODUCE CO.

CINCINNATI, Feb. 20.—The market for honey has livened up considerably, and we are selling fancy double decker comb honey at $3.75 to $4.00 a case; fancy extracted honey in 60-lb. cans at 9@10c a pound, and amber extracted honey in barrels at from 6½@8c a pound, according to the quantity and quality purchased. For choice bright yellow beeswax we are paying 30c a pound delivered here, or if taken out in trade we allow 32c.

THE FRED W. MUTH CO.

BOSTON, Feb. 14.—Fancy white comb honey, 16@17 per lb.; No. 1, 15@16c. Fancy white extracted, 10@11c; light amber, 9@10c; amber, 8@9c. Beeswax, 30c. BLAKE-LEE CO.

INDIANAPOLIS, Feb. 14.—White comb sells at 18c in 10-case lots; No. 1 white, one cent less. Amber comb in slow demand, and at lower figures. Best extracted sells at 11@12c in 5-gallon cans. Comb honey seems to be in excessive demand, and very little is now being offered by producers. Beeswax is in good demand, and producers are being paid 30c per pound. WALTER S. POUDER.

DENVER, Feb. 15.—We quote comb honey in a jobbing way at the following figures: No. 1, $3.05; choice, $2.90; No. 2, $2.70 Extracted honey, white, 9c; light amber, 8c; strained, 6¾@7c. We pay 26c in cash and 28c in trade for clean yellow beeswax delivered here.

THE COLO. HONEY-PRODUCERS ASS'N.
F. Rauchfuss, *Mgr.*

CINCINNATI, Feb. 15.—The demand for comb and extracted honey is light, with a good supply. No. 1 white comb honey sells in large lots at $3.60 per case of 24 sections. There is no demand for off grades. White extracted honey in 60-pound cans is selling from 9½@10c; light amber in barrels 7@7½c; in 60-pound cans, 8@8½c. Beeswax in fair demand sells at $33 per hundred.

The above are our selling prices, not what we are paying. C. H. W. WEBER & CO.

SAN FRANCISCO, Feb. 14.—The demand for comb honey has not been so marked, although plenty has been offered, and the prices are as follows: Fancy No. 1, 15@16c; No. 2, 13½@14½c; dark comb, 11@12c; water-white extracted, 8@8½c; light amber, 7½@8c per pound; amber, 6@7½c; lower grades, 5@6c Beeswax, 27@30c for nice yellow wax, and 23@26c for dark. JOHN C. FROHLIGER.

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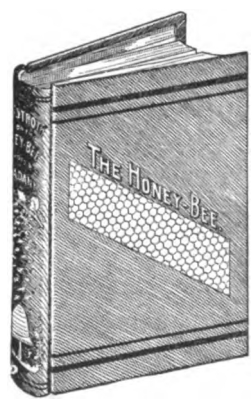
Very cordially,
Frank C. Pellett,

Atlantic, Iowa, Feb. 4, 1913.



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Golden or 5 Band, 3 Band Italian and Carniolan Queens.

Untested Queen, 1 for $1.00. Tested Queen, 1 for $1.50. Nuciei with untested Queen, 1 frame $2.50, two for $3.50. Nuclei with tested Queen, 1 frame $3.00, two for $4.00. Quick service and satisfactien guaranteed.

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Hives should be ordered at once if they are to be ready for spring. Frames, and other inside fixsures too, should be put together now; and as this is a dull season with most of our customers, the work can be done now with no extra expense.

If you are wanting any special goods, orders ought to be in our hands within the next few days. Other cars will be coming from the factory, and we can save you considerable in transportation charges by having your goods come with ours in the cars.

Our new catalog will be out, probably, before the first of February. If you are not on our mailing list, send us a postal-card request for this catalog, and it will be mailed as soon as they come from the printers. In the mean time you may order from the 1912 catalog. If you haven't one on file, a copy will be mailed immediately on request.

If you want to buy in quantities considerably larger than quoted in the catalog give us a list of your needs and we will quote price accordingly.

If you have never tried Root quality goods, make a beginning this season. You will not be disappointed in results. Our branch is maintaiued for service in this line, and we can give it to your entire satisfaction.

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AMERICAN BEE JOURNAL

APRIL 1913

22,138

American Bee Journal

AMERICAN BEE JOURNAL

PUBLISHED MONTHLY BY
American Bee Journal
1st Nat'l Bank Bldg. Hamilton, Illinois

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From Improved Stock.

The best that money can buy; not inclined to swarm, and as for honey gatherers they have few equals.

3-Band, Golden, 5-Band and Carniolan

bred in separate yards, ready March 20. Untested, one, $1; six, $5; 12, $9; 25, $17.50; 50, $34; 100, $65. Tested, one, $1.50; six, $8; 12, $15. Breeders of either strain, $5. Nuclei with untested queen, one-frame $2.50; six one-frame, $15; two-frame $3.50; six two-frame $20.40; nuclei with tested queen, one-frame, $3.00; six one-frame, $17.40; two-frame, $4; six two-frame $23.40. Our Queens and Drones are all reared from the best select queens, which should be so with drones as well as queens. No disease of any kind in this country. Safe arrival, satisfaction, and prompt service guaranteed.

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I have successfully shipped Bees and Queens from this place every month of the year.

" Two colonies of bees invoiced by you on Jan. 20 to Matsutaro Sarada, Kobe, arrived safely on March 23, and are satisfactory.
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Each Colony contained a fine Breeding Queen.

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'YOUR MONEY'S WORTH" is my motto. TERMS are Cash with order. I refer you to Sabinal National Bank or any business firm in Sabinal.

have seven yards, and with several hundred nuclei, I can serve many customers. I solicit your trade.

J. A. Simmons, Uvalde Co. Apiaries, Sabinal, Texas

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Also send us your Old Combs—we will render your wax and save you money.

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"The Busy Bee-Men"
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BEE KEEPERS:—
We manufacture Millions of **Sections** every year that are as good as the best. **The CHEAPEST** for the Quality; **BEST** for the Price. If you buy them once, you will buy again.

We also manufacture **Hives, Brood-Frames, Section-Holders and Shipping-Cases.**
Our Catalog is free for the asking.

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American Bee Journal

PRATER-YORK CO.

107 MAIN STREET

Sandpoint, Idaho

PRATER-MYRICK CO. have been doing business in Real Estate, Renting, Loans, Insurance, etc., in Sandpoint, Idaho, for a number of years past. Mr. Prater has been in this county (Bonner) for nearly 20 years. For honorable, upright and square dealing the firm is well known to all here. Fortunately, I have been able to acquire the interest of Mr. Myrick in the concern, and beginning with March 1, 1913, the firm will be known as "PRATER-YORK CO.," and will continue the same lines of business.

For readers of the old American Bee Journal interested in this part of our great country, we will be glad to answer enquiries, or send our *free* Circular, which gives considerable information that is reliable about this locality.

There is much interest manifetsed by people living in the Eastern and Southeastern parts of the United States in this great and growing Northwest, which is destined to be occupied by many wide-awake people who are looking for a new home, and where opportunities for advancement are greater than in the older and overcrowded parts of our country. Let us hear from you, if you are thinking of making a change. Lots of unoccupied bee-territory in this county.

Honey as a Health-Food

This is the title of a 16-page circular, 3½x6 inches in size, gotten up for selling honey. It contains an article on why honey should be eaten, which gives much valuable information on honey. It also has many recipes for the use of honey, both as a food and as a remedy. It ought to be distributed freely among honey-customers. The prices are as follows:

Sample copy free; 10 copies, postpaid, 25 cents; 50 copies, 90 cts.; 100 copies, $1.50; 250 copies, $3.00; 500 copies, $5.00; 1000 copies, 9.00. Your business card will be printed free on the front page on an order of 100 or more copies.

Special Bee-Literature Offers

Ask for my circular containing special offers of bee-literature. And if you want any bee-papers or other magazines, send me your list and I can quote you a price that will save you some money, I am sure. Address,

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Publisher and Subscription Agent,

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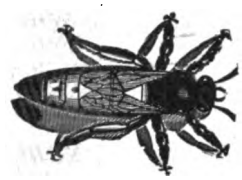
Untested ITALIAN QUEEN-BEES



OUR STANDARD-BRED

6 Queens for $4.50;
3 for $2.75; 1 for $1.00

For a number of years we have been sending out to bee-keepers exceptionally fine Untested Italian Queens, purely mated, and all right in every respected. Here is what a few of those who received our Queens have to say about them.

AMERICAN BEE JOURNAL—
Gentlemen:—Last October I purchased three queens of you for my experiments with different queens, and wish to ask you if queens of this season will be of this stock? One of the Queens is the most remarkable queen I ever owned for prolificness, which she transmits to all her daughters.
Riddle, Oreg., July 4, 1912. L. W. WELLS.

AMERICAN BEE JOURNAL—
Gentlemen:—The queen you sent me came in good condition. She was one of the best I have ever bought. I have her introduced and she is doing business as if to the manor born. I want another of those beautiful queens as soon as I can possibly get it for making up my fair exhibit. Please send a fine one. Such queens certainly advertise your business.
Darlington, Wis., July 31, 1912. C. R. BRIDGMAN.

AMERICAN BEE JOURNAL—
Gentlemen:—I bought a queen of you about 35 years ago, and from her I italianized 1150 colonies of the finest beauties of unusual good qualities. I lived near Milton Center, Ohio, at the time. Yours truly,
Portales, New Mexico, July 10, 1912. J. W. HOUTZ.

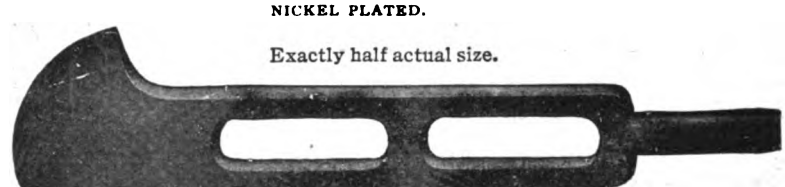
We usually begin mailing Queens in May, and continue thereafter on the plan of "first come first served." The price of one of our Untested Queens alone is $1.00, or with the old American Bee Journal for one year, both for $1.60. Three Queens (without Bee Journal) would be $2.75, or six for $4.50. Full instructions for introducing are sent with each Queen, being printed on the underside of the address card on the mailing-cage. You cannot do better than to get one or more of our fine Standard-bred Queens.

AMERICAN BEE JOURNAL, HAMILTON, ILLINOIS

The Ideal Hive-Tool Free as a Premium

NICKEL PLATED.

Exactly half actual size.



Price, postpaid, 35 cents; or with the American Bee Journal one year—both for $1.15; or mailed FREE as a premium for sending us one new subscription at $1.00.

This is a special tool invented by a Minnesota bee-keeper, adapted for prying up supers, and for general hive and other work around the apiary. Made of malleable iron, 8½ inches long. The middle part is 1 1-16 inches wide, and 7-32 thick. The smaller end is 1⅞ inches long, ½ inch wide, and 7-32 thick, ending like a screwdriver. The larger end is wedge-shaped, having a fairly sharp, semi-circular edge, making it almost perfect for prying up hive-covers, supers, etc., as it does not mar the wood. Dr. C. C. Miller, who has used this tool since 1903, says: "I think as much of the tool as ever."

American Bee Journal, Hamilton, Illinois.

American Bee Journal

CAUCASIANS

QUEENS ESTABLISHED IN 1878 **NUCLEI**

Yes, friends, I had to get back in the harness again. Last year I decided to quit the Queen business. I wrote some prospective customers to that effect, but here I am with those beautiful Caucasian Queens, the only exclusive Caucasian Queen-Breeding Apiaries on the American Continent.

The Gentlest-Hardiest-Best Honey Gatherers

AND THE MOST PROLIFIC BEES ON EARTH. PRICES GRATIS.

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P. S. Queens shipped to all parts of the world

Dr. Peiro will continue to give the readers of the American Bee Journal free advice regarding the subject of SURGICAL and MEDICAL treatment. Many have availed themselves of this offer. Return postage is all you need to send. Address, DR. PEIRO, 4536 Perry Street, Chicago, Ill.

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Bees More Beautiful, More Gentle, More Industrious, The Best Honey-Gatherers.

Universal Exposition, St. Louis, HIGHEST AWARD.

Extra Breeding Queens, $3; Selected, $2; Fertilized, $1.50; lower prices, per doz., 50 or 100 Queens. Safe arrival guaranteed. Write

ANTHONY BIAGGI,
Pedevilla near Bellinzona,
Italian Switzerland.

This country, politically, Switzerland Republic, lies geographically in Italy, and possesses the best kind of bees known.

HARTFORD, CONN., April 20, 1907.
Please find enclosed $11 for six queens. I hope to get as good ones as I received before and if I do I shall want more.
A. W. YALES.

NORWICHTOWN, CONN., Sept. 14, 1912.
I send you money order for $3. I wish 2 of your fertilized queens. I have seen some of your bees owned by Mr. Yates atd I like them.
ALLEN LATHAM.

Please mention Am. Bee Journal when writing.

Better Fruit

Published at HOOD RIVER, OREGON,

is the best, handsomest and most valuable fruit growers' paper published in the world. It is handsomely illustrated and shows the Western methods which have been so successful in winning high prices.

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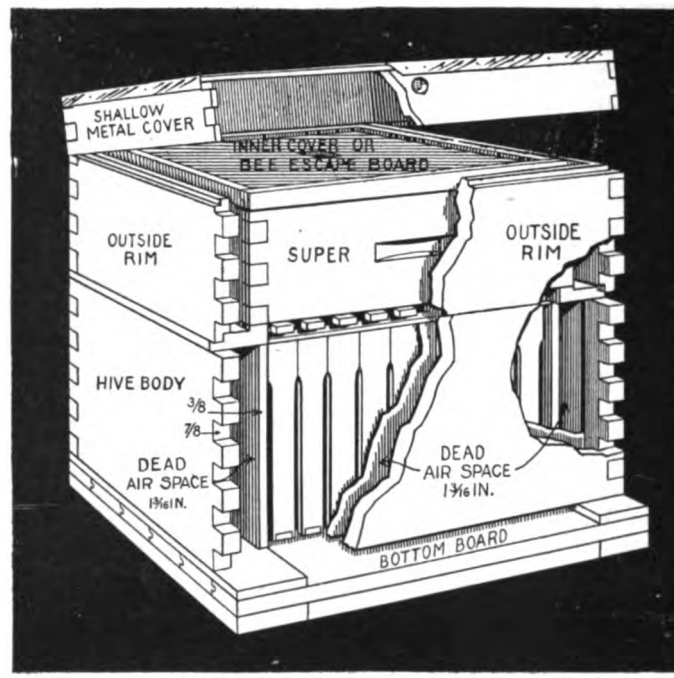

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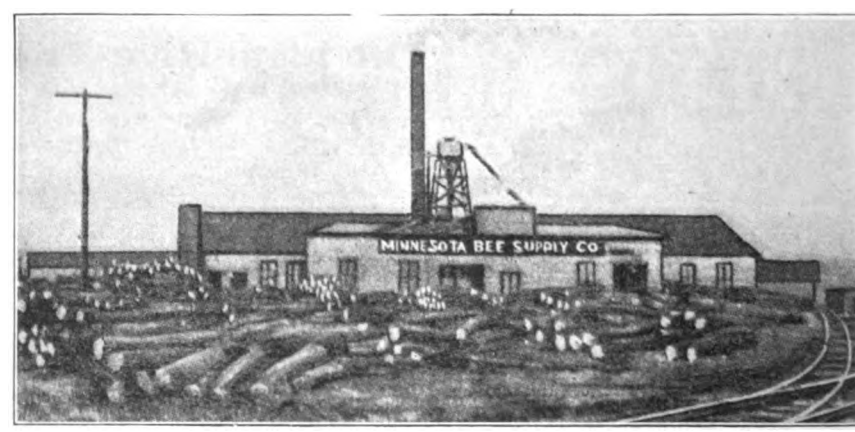

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We manufacture dovetailed hives, supers, sections, shipping cases, brood frames separators, also berry boxes and crates. Catalog Free.

Minnesota Bee Supply Co.

No. 100 Nicollet Island, Minneapolis, Minn.

(Entered as second-class matter at the Post-Office at Hamilton, Ill., under Act of March 3, 1879.)

Published Monthly at $1.00 a Year, by American Bee Journal, First National Bank Building

C. P. DADANT, Editor.
DR. C. C. MILLER, Associate Editor.

HAMILTON, ILL., APRIL, 1913

Vol. LIII.—No. 4

EDITORIAL COMMENTS

Parcel Post on Queen-Cages

Queen-bees are now to be mailed according to the new rates for all fourth class matter. This allows a package of cages weighing up to 11 pounds to be sent at the new Zone rates.

Do not forget that the stamps made especially by the Government for parcel-post packages, must be used on queen-cages.

Cages should probably be made stronger than heretofore, or at least care should be taken by the shipper to see that all cages are in good condition when mailed. They should be tied securely together when more than one is sent to the same address. The labels and wire-screens should be well fastened.

We have often noticed a package of a half dozen or more cages arrive untied. In some cases one or more from such a package would arrive on the following day or be lost entirely. The increase in weight of mails should be taken account of, and cages securely packed before mailing. This caution applies to other merchandise going by mail. Live bees may be mailed only as samples, and must not have a salable value, according to the Postal Laws and Regulations. This does not affect queen-bees with attendants, but prevents the wholesale shipping of bees by the pound or more. As long as mail matter is carried in sacks, bees in bulk would not transport successfully. We learn there are some packages now carried outside the sacks, and why not bees by the pound when properly packed, just as they do by express The use of hampers for packages, in combination with the sacks for ordinary mail matter would solve the problem.

The special parcel post stamps are a *nuisance* as far as the public is concerned. Postage stamps should be legal tender on all postal matters.

Let us make our wants known before the next step is taken by Congress and the Postal Department to correct and improve the parcel post regulations for the benefit of the people at large.

Stimulative Feeding

The idea that by feeding a certain amount every day, or every other day, the activity of a colony may be greatly increased is a very attractive one to a beginner. Yet it seems necessary to repeat again and again that stimulative feeding is a two-edged sword by which more harm than good may be done, and that there are experienced bee-keepers who never find it advisable to practice it. Exception may be made of localities where there comes a dearth of such duration that the queen stops or greatly decreases laying. The time between fruit bloom and white clover is the one over a large region of territory in which there is a dearth of pasturage. But it seldom happens that the dearth continues long enough to affect materially the laying of the queen, for in the spring of the year it seems natural for the queen to go right on laying for some time after a flow ceases. If the beginner wants to try stimulative feeding, let him try it on only a part of his colonies, leaving the others severely alone after seeing that they are abundantly supplied with stores. Then he may be able to tell by comparison whether stimulative feeding is a good thing in his case.

C. C. M.

The beginner will probably ask why stimulative feeding is called a two-edged sword. Because there are reefs in the method that require a good judge to avoid them.

1. You may feed a colony which is too weak to take care of what you give it, be it ever so little, and which may allow the robber-bees of the vicinity to take it away. No colony which is weak and cannot cover more brood than it possesses, should be fed unless previously strengthened in some way.

2. In stimulative feeding, there is danger of over-feeding, feeding enough to crowd the colony for room, so that the queen will have to reduce her laying. This is exactly the reverse of what we want. Then if the feeding is done at a time when the new crop is soon to begin, some of this feed might be carried up into the super at the first yield of the harvest.

3. If you feed in early spring, when the weather is too cold for the bees to fly, you will lose more bees than you will gain, for the feed will induce them to go abroad, for a few hours at least after each feed.

If your colony has plenty of honey, *some of which is unsealed*, so that the bees need not hesitate to supply the larvæ, feeding is a detriment. But if the supply, though ample, is all sealed honey, and not in sufficient quantity to crowd the bees for more room to breed, you will cause an increase of activity by either uncapping

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some of that sealed honey or by adding some thin. warm food. Warm food because it will be more readily taken; thin food because in spring time the bees need water to dilute the honey of which they may make the larval pap. Some scientists contend that this pap is produced by the salivary glands of the head, others that it is produced in the stomach like the chyle, and is, in fact, "chyle food." But neither of them deny that it takes a great deal of water to produce the pap. You may ascertain this when you notice that the strongest and best breeding colonies are those that send the largest number of foragers to the water-trough or the nearest pond. This is why, although dry sugar is usually taken slowly by them, we do not consider it a very good food, for it compels the bees to go repeatedly in search of water. In cool or damp days of spring many bees are lost in their trips after *cold water*.

When speaking of thin food, we mean food containing only 5 to 10 percent more water than winter food, and that is about two weights of sugar to one of water. Very thin food is injurious, for the bees cannot evaporate it in cool weather.

If colonies are short of stores after fruit bloom, we favor rather repeated feeding than lump amounts. Repeated feeding will keep them active and enhance laying. Lump feeding may be too copious, and if the crop comes suddenly it may cause the placing of some of this food in the supers. We remember once giving some destitute colonies, in May, combs of honey in the supers, to which they added honey instead of using it up, within a week, because the crop began with an unexpected rush.

Much depends upon location. But if you live in a country where there is a very marked shortage of bloom between fruit bloom and clover, keep your eyes open and feed if the breeding decreases. Never feed sugar syrup, if you have good honey to spare.

When the bees carry in honey or fresh food of any kind, there is an increase in the production of pap, an increase of attention paid to the queen and a consequent greater number of offerings of food to her. How much influence her own disposition to lay has on these attentions, no one can tell. However, it must be as with the hens, the natural tendency Nature has given them, to begin breeding as spring opens, is cultivated and increased by judicious use of warmth and food appropriately given. Judicious feeding also prevents "starved brood," which is sometimes mistaken for foul brood.

Mr. B. A. Aldrich, at the Iowa meeting of the past winter, described his method of stimulative feeding which consists in using a large feeder with only a few small holes in it through which the food passes very slowly so that the bees do not secure it faster than it may be consumed in brood-rearing. This does away with the annoyance of having to open the hives often. C. P. D.

The above had been written when the following letter was received which covers some of the points mentioned, and illustrates the ills of *over-feeding*:

In the February number of the American Bee Journal, Mr. E. S. Miles says that "when you have fed your colony what you are quite sure is plenty, then feed it about 5 or 10 pounds more."

I did this very thing to some of my colonies last winter, and obtained the worst results from these colonies. I saved the colonies all right, but the ones that I fed the most stored the least honey, and the ones that were fed little or none at all filled their hives full.

I am not trying to argue against spring feeding, but I believe you can feed too much. I fed a lot of comb honey that was hardly good enough for table use, and the bees cleaned up nearly every bit that I gave them. I believe now that these bees already had enough honey to have carried them through, and that they simply carried this extra honey down and filled the comb that they had emptied during the winter, and that the queen did not have sufficient room to lay her eggs. These colonies lived all summer (and are good, strong colonies now, for that matter), and kept the bottom stories well filled with honey, but they never increased.

I examined the frames in July or August, and found brood in only two or three frames in each hive, and these frames were more than half honey. All the rest of the frames were filled with honey. The bees never stored any in the supers.

At present my colonies all seem strong. They have had several flights this winter, and I do not expect to feed them a pound unless something unusual happens.

I have been handling bees but two or three years, and I should like to have the Editor say whether or not it is possible to feed too much.

Shelbyville, Ky. H. A. Wells.

This letter is already answered by the above remarks. There is a very easy remedy, however, for the condition which Mr. Wells describes. It is to remove a frame of honey and insert, in the center of the over-wealthy colony, a frame of empty, dry comb, or if such is not to be had, a frame of foundation, or even an empty frame. However in the last case, the bees would probably build drone-comb, which would be injurious. After the empty comb has been filled with brood the same operation may be repeated with another frame of honey, until the colony is sufficiently depleted of its overstock. Mr. Miles or Mr. Byer would have done this without hesitancy. Often an exchange between an excessively heavy colony and a destitute one will prove beneficial to both.

In all our manipulations of the apiary it is necessary to use judgment and foresight. We should remember that the advantage of the movable-frame hive over the box-hive is in the manipulations which it permits.

Wisconsin Foul Brood Law

A change in the Wisconsin Inspection law is now before the Legistature of that state. We are told that it goes among the representatives under the name of "France Bill," so well known is our good and popular friend N. E France among the law makers of Wisconsin. Mr. France would like to see the inspection of bees placed under the office of the State Entomologist. This will sooner or later be the case in every State, unless a State apiarist be appointed, as they have done in the Province of Ontario. A State Entomologist must necessarily employ a competent apiarist to look after this branch of the already numerous entomological duties. The fighting of injurious insects, and

Later.—A card from Mr. France announces that the law has passed both houses unanimously, and needs only the Governor's signature to become a law.

The Retiring of an Old Editor

The Signor And. DeRauschenfels, for 25 years editor of L'Apicoltore, the oldest Italian bee journal, lately withdrew from active life. He is 85 years old. He is one of the progressive bee-writers of the world. In 1901 he published "L'Ape E La Sua Coltivazione" (The Bee and its Culture) with an "Atlas" of bee-culture, in which he reproduced the microscopic studies of Barbo, lithographed by Clerici. He announced his withdrawal to us in a private letter, last December, while modestly refusing to send us his photograph, saying he had none, and claiming to be "unworthy of the honor."

We have, however, secured the promise of that photograph, from an amateur artist, Signor Arnaldo Cotti, who lives in the same village, Noceto, near Parma. This is lucky, for there is no photographer in this small locality, and Sig. DeRauschenfels is not in sufficient health to go to Parma.

This noted apiarist made his retiring bow to the bee-masters of Italy in the December number of L'Apicoltore,

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using as his last words a parody of the short and solemn address of the gladiators to the Emperor in the old Roman arena: "Morituru vos salutat" (He who is about to die salutes you). His successor in the editorial chair, Vincenzo Asprea, selected by the Association, is also an able writer, and we predict that L'Apicoltore will continue with him the progressive work that it has carried on for 45 years. The January number still contains some of the work of Rauschenfels, and our readers may have an idea of the diversity of his researches, when we inform them that, in that number alone, he quotes foreign bee-journals in 17 different instances, 3 of them being from the American Bee Journal, and 2 from Gleanings in Bee Culture.

The Bees vs. the Neighbors

Mr. Thos. Buckley, an old, experienced apiarist of Peoria, Ill., has a novel method to protect his neighbors against his bees, which are located in a back yard in close proximity to another back yard. He has erected a fence of wire-netting of about an inch mesh and 8 feet high. He says the obstruction is sufficient to keep the bees from annoying the neighbors, for the bees rise above the fence as they take flight. So slight an obstruction would appear inadequate, but when we think it over, we perceive that the bees like a free, open space, and when once accustomed to following a course, they never hesitate. Many a neighborhood feud might be prevented by the timely use of some such protection.

Trifolium Incarnatum

The above named clover, *crimson clover*, is highly recommended by Prof. Surface, who spoke quite at length at the National meeting concerning the high quality of this peculiar and still rare clover. When we say "rare" we mean in the United States, for it is quite common in Europe. Bonnier, in his "Nouvelle Flore," mentions it as "excellent early hay" and "much visited by the bees." In his "Cours D'Apiculture" he gives it third rank, mentioning only the esparcet and the white clover before it as honey yielders. In view of its enriching qualities for the soil, this clover should be accorded a trial wherever possible.

MISCELLANEOUS NEWS ITEMS

Water for the Bees.—I was visiting in the country. The neighbor's wife was much incensed. She was a good old mother, plump and kind hearted, but on that day she was gesticulating all alone by the cistern pump, and was addressing an invisible enemy:

"Isn't that going to stop? What do you think of it? Can't get near the pump! Those miserable bees are there all the time. If you happen to leave a little water in a pail, at the end of an hour there are hundreds of them drowned in it."

She threw out a big bunch of bees, wet and almost inert. I came near and smiled. This irritated her still more:

"They'll sting the children; they climb up one's legs; we might swallow one of them and that would kill us. I am going to complain to the police."

She was hardly to blame. I watched and saw the direction the bees took. They made a continuous line between the pump and an apiary of a few hives belonging to a man not far off. I went to him and explained to him that his bees, during brood-rearing, needed water to make the pap. He was much astonished and somewhat displeased that a stranger should attempt to teach him something. His bees were thriving, and had never needed any water. His parents had kept bees before him, and he ought to know. However, he consented to place water in a dish with a a few shavings in it. In a short time the trouble was ended.—Crépieux-Jamin, in *L'Abeille de l'Aube*.

A jug filled with water, inverted over a woolen cloth in a dish will supply quite a number of colonies with a sufficient amount of water. Capillarity will draw the water out of the jug into the cloth in the same manner as the wick draws the oil from a lamp. It is well to have the jug slightly raised, so the air may get in when a vacuum is created. Some apiarists use a long trough with boards floating in it.

St. Lawrence-Jefferson County Meeting of New York.—About 50 apiarists attended the sessions of this live bee-keepers' association held Feb. 20 and 21 at Ogdensburg. This is a fine attendance for a county organization; so large a number is seldom found at State meetings. Bee-keepers will find these local meetings very valuable, for little time is spent to reach them, and their business sessions are short, giving the members plenty of time for their program and informal talks and discussions.

The production of extracted honey, and how he winters his bees in Canada, was interestingly treated by R. F. Holtermann, of Brantford, Ont. Producers of extracted honey are fortunate in hearing this subject treated by so successful a bee-keeper. Chas. Stewart, a New York State Inspector, urged the keeping of Italian bees in preference to any other kind to ward off European foul brood. His experience proves pure Italians seldom contract the disease, even when an apiary is surrounded by infected yards.

Many bee-keepers took active part in the discussions, among whom are A. A. French, Chas. S. Phelps, Mr. Hammond, and N. L. Stevens.

The meeting in 1914 will be held at Watertown, N. Y.

The Census of New Zealand.—Mr. Isaac Hopkins has a very interesting report in the New Zealand Farmer on the "Status of Bee-Keeping in New Zealand." In that country, census is taken every five years. The figures for 1911 are as follows:

	Bee-keepers.	Colonies of bees.	Output honey, lb.	Output wax, lb.
1906....	13,506	74,341	1,003,940	31,682
1911.....	11,002	71,584	1,457,272	28,061

During the preceding 12 months 31,736 colonies were inspected by the government inspectors, of which number 3027 colonies were found to be infected with foul brood. Mr. Hopkins, in commenting on these figures, states that while the percentage (10 percent) diseased seems large, yet it is satisfactory since the inspectors are only fairly started with their work. The percent of disease should decrease materially with each season's inspection.

Although there is a law against keeping box-hives, there are a number kept *on the sly*. They would not probably exceed 2 percent of the total, however.

National Grading Rules.—The following grading rules were adopted at the National convention in Cincinnati, Ohio, Feb. 13, 1913:

Sections of comb honey are to be graded; first, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I.—FINISH.

1. EXTRA FANCY.—Sections to be evenly filled, comb firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. FANCY.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side, exclusive of the outside row.

3. No. 1.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. STANDARD.—Comb not projecting beyond the box, attached to the sides, not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II.—COLOR.

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III.—WEIGHT.

1. HEAVY.—No section designated as heavy to weigh less than fourteen ounces.

2. MEDIUM.—No section designated as medium to weigh less than twelve ounces.

3. LIGHT.—No section designated as light to weigh less than ten ounces.

In describing honey, three words or sym-

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bols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example; Fancy white, heavy (F. W. H.); No. 1 amber, medium (1 A. M.), etc. In this way any of the possible combinations of finish, color and weight can be briefly described.

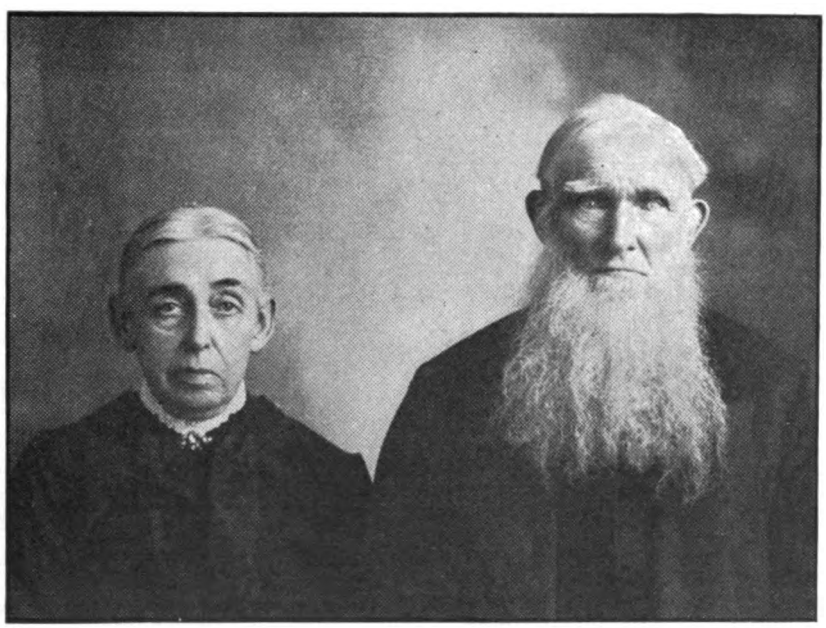
CULL HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases, or that in badly stained or propolized sections containing pollen honey, dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with comb projecting beyond the box, or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box, leaking, injured, or patched-up sections; sections weighing less than ten ounces.

Mrs. Harriet France, a highly respected resident of Platteville, Wis., died Feb. 13, 1913, age 78 years, at the home of her only son, N. E. France. Her life had been despaired of for some time, and the devoted care and loving attention of her family could hold her no longer. Mrs. France was born July 6, 1834, in the State of New York. When 16 years old she joined the Methodist church, of which she has been a devoted member.

At the age of 22 she came alone by lake boats and overland stages to Platteville, Wis. July 23, 1856, she was married to Edwin France, formerly of New York. From here they went by stage to their pioneer western home in Iowa, Mr. France farming during the summer and trapping valuable furs during winter. He became expert with the rifle. The Iowa ranks of sharpshooters for the Civil War being filled, Mr. France, with his wife and little boy, returned to Wisconsin in hopes of here enlisting. It took over two weeks to make the journey with their ox team. His health at once failed. Unable to join the ranks, or return to their western home, he engaged in selling sewing machines, and producing choice fruits and honey. Over 48 years Mr. and Mrs. France have resided in Platteville. E. France, aged 84, died five years ago. There is left to mourn their loss, N. E. France and wife; also five grandchildren.

This ever kind mother has run the journey of life well, the path marked with deeds of kindness and cheer.



THE LATE MR. E. FRANCE AND WIFE.

Progress in Ontario.—That the department of bee-keeping at the Ontario Experiment Station is not going to let that of the States excel in progress is evident from what they propose to do this season.

Mr. Morley Pettit, the director, is asking for volunteers in the ranks of the Ontario bee-keepers to aid him in a series of experiments under the supervision of the department as follows:

1. Method for the prevention of natural swarming in extracted honey production by holding the colony together.
2. Method for the prevention of natural swarming in comb honey production, by artificial shaken-swarming.
3. Method for the prevention of natural swarming by manipulation of hives rather than combs.
4. Method of spring feeding to stimulate brood-rearing.
3. Method of packing bees when taking them from the cellar.

Of these, the first three were tried last season by a number of bee-keepers with the result that in the first the swarming was decreased from 48 percent to 21 percent; in the second the swarming was reduced from 100 percent to 57 percent; in the third the swarming was but 14½ percent as against 39 percent when the bees were left to swarm naturally. A resultant increase in honey with colonies managed according to plans of the department was very evident.

The department figures, from statistics gathered last season from the bee-keeper experimenters, that there is an annual profit in bee-keeping of 58 percent on capital invested. This, of course, does not take into account the cost of labor involved.

Pure Italian stock is recommended to every one, owing to its ability to resist European foul brood.

Spring Notes.—The following from Morley Pettit, Provincial Apiarist of Ontario, is applicable to warmer latitudes also.

"If the hive is warm they can spread out and cover more brood. This means more young bees will be hatched in the same time. Then when summer comes there will be more workers in the hive to gather honey. Any one who thinks about this for a moment will see why all hives should be kept warmly packed and sheltered from cold winds during what bee-keepers call the spring breeding up time, right up to settled warm weather.

On the other hand, entrances must not be closed. There is that about bee nature which does not brook confinement, and except when bees are screened in for moving, they must have 'free ingress and egress' to their hives. On bright, cold days it is well to shade the entrance, however, lest the sunshine tempt some bees to come out and be lost on the snow."

Illinois Bulletin Issued.—Foul Brood Bulletin No. 1, of the Illinois State Bee Inspection Department, has just been issued. Copies may be obtained by addressing Mr. A. L. Kildow, State Bee-Inspector, Putnam, Ill., or by addressing the American Bee Journal office, Hamilton, Ill.

Death of Oliver Foster.—Just as we are going to press, we learn of the death of Mr. Oliver Foster, of Colorado. Mr. Foster was a large honey-producer and an authority on comb-honey production. A sketch of his life will be given in the May issue.

Honey-Bread in Europe.—The food value of honey seems to be better understood in the "old countries" than over here, and enormous quantities are used. Cakes and sweet-breads made with sugar soon become dry and crumbly, and to get the good of them they must be eaten when fresh; but where they are made up with honey, they seem to retain their moist freshness indefinitely. In France, honey-bread a year or 18 months old is preferred to that just made. They say "it has ripened." It is the preservative, or

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AN ORCHARD OF ALMOND TREES

rather the unchanging quality of honey, that makes it so popular with the best confectioners.—*Exchange.*

The Bij-Vanger or Bee-Pirate of Africa.—In our September and November numbers for 1912, we made mention of the bee-eating philanthus of Europe, and of the experiments carried on by the celebrated entomologist Fabre. The South African Poultry Magazine, published in Johannesburg, in its December number, contains an article by G. B. Oettel on these insects:

This season the dry weather has brought along the familiar yellow-bodied *bij-vanger*, now more commonly known as the "Pirate." This insect haunts the watering places of bees and entrances of hives, especially those which are not provided with a fairly wide porch for shade, and seizes the bees which are unwary enough to be about at the time. Her depredations—for it is only the female of the species that commits these raids and onslaughts on the inmates of the hive—are serious, and often demoralize the whole apiary.

I have seen whole colonies listless and "at home," fearful of the attacks of these horrid insects which hover, sometimes a dozen at a time, in front of the entrances, awaiting the incoming heavily-laden-with-stores-bee, as she drops over-burdened upon the alighting-board, preparatory to crawling inside to disgorge her supplies of nectar, or to get rid of the huge loads of pollen collected for the steadily increasing patches of brood which should now be filling every available space within the hive.

For the town bee-keeper the only really effective way to get rid of these insects is to catch them by means of a butterfly-net. This is readily accomplished by choosing a sunny day for the time of our operations. Half an hour spent in this way several mornings or afternoons will soon effect a clearance. My experience has been that the pirates quickly find out the danger zones, and leave them for other centers where their depredations are not disturbed. In this connection several informed me that poultry are excellent catchers of these pests, par-

AN APIARY IN CALIFORNIA IN THE MIDST OF ALMOND BLOSSOMS.

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ticularly when the alighting-board of the hive is fixed just above the height of the birds' heads. They look out for the scuffle which invariably follows the attack of the pirate, and when both insects roll off on to the ground, one peck sees the end of the invader's temerity, and she herself rests in the crop of the fowl.

An Illinois Bee-Keeper Passes Away.—Mr. S. T. Crim, of Dawson, Ill., who died Jan. 14 last, had almost rounded out his 73d year. Coming from Loudoun Co., Va., where he was born Feb. 29, 1840, he spent the last 30 years of his life in Illinois, keeping bees.

The Illinois State Bee-Keepers' Association will miss one of its older loyal members, who stood for the right and for progress.

Kansas Loses Appropriation. — The bee-keepers of this State fared badly at the hands of the Legislature, whose watchword seems to be economy in appropriations, but in many cases crippling the legitimate interests of the State. We have a splendid foul brood law, and that is all. We did not receive one cent as an appropriation, and, more than that, it took the hardest kind of work to keep them from repealing the law itself.

O. A. KEENE, *Sec.*

A Pleasing Picture of Flowers.—On the front cover page of this journal is a picture of wild asters or daisies, taken by Wesley Foster. He wrote us:

"This little clump of flowers was growing in an orchard close to one of the apiaries of Mr. W. P. Collins, of Boulder, Colo. He is president of the Colorado Association.

"The bees were busily gathering pollen from the flowers before I frightened them away in focusing my camera."

BEE-KEEPING FOR WOMEN

Conducted by MISS EMMA M. WILSON, Marengo, Ill.

Manufactured Honey

A loyal sister sends the following, clipped from a religious periodical, with a woman's name signed to the clipping:

Put three pounds of granulated sugar into a porcelain vessel. Add sufficient water to moisten and make a thick syrup. When boiled to a syrup add one pound of good honey and let the mixture come to a boil. Remove from the fire and pour in vessels desired. The increased quantity will be found as good as the original pound of honey, and a great many people like it better because of the absence of the honey comb, which is dissolved.

That woman and that religious periodical might be in better business than giving publicity to such stuff as that. Let us be charitable and attribute it to ignorance, for no intelligent mother would be likely to palm off upon her children a mixture of three parts sugar to one part honey as being "as good as" pure honey. That woman is probably entirely ignorant of the fact that thousands are injured in health by the excessive demand made upon their digestive organs in changing cane sugar into invert sugar, whereas honey is ready for direct assimilation without making any such demand. Taking this view of the case, a pound of sugar is not as wholesome an article of diet as a pound of honey, and neither are three pounds as good, even though a pound of honey be added.

That statement that "a great many people like it better" would be laughable if it were not sad. If we "let the mixture come to a boil," the sugar part is as good as ever, but the honey is injured beyond repair. The delicate flavor and aroma of honey will not stand boiling. It is a pretty safe guess that the woman in this case did not learn from her own children that they liked the boiled mixture better than the unboiled honey.

But the reason given why "a great many people like it better" is "because of the absence of the honey comb," and the honey comb is absent because it "is dissolved!" That's something new under the sun. Dissolve a thing and presto, it is gone! Equally new under the sun is the idea that one can dissolve wax in hot sugar and honey. Heretofore the most that could be done in that way was to melt it. And if "a great many people" like honey better with no comb, or with the comb dissolved, it seems a bit strange that they will pay a higher price for honey in the comb than for the pure honey extracted from the comb. Poor woman! Poor periodical!

A Sister's Experience in Wisconsin

I started with 2 colonies about 5 years ago, and have 28 now. I have not tried to work for lots of colonies, but to keep them strong in bees. Two years ago I took 15 colonies out of the cellar and secured 1200 pounds of honey and increased my bees to 27 colonies.

Last year, being a very poor year, I did not get any honey; it was too dry. This year I had to unite a few colonies, as I had a few queens laying nothing but drone eggs. I got about 700 pounds this year. I tend the bees myself.

(MRS.) GEORGE SCHMIDT.

You were very wise to run for strength rather than number of colonies, and you certainly did well to get 80 pounds per colony, and nearly double your number of colonies besides.

Color or Pollen

Miss Annie D. Betts, who appears to be one of the keenest observers among British bee-keepers, reports some observations upon pollen that are interesting, British Bee Journal, page 33. Two observers may report two different colors of pollen from the same plant, and both may be right. The pollen of *Erica cinerea* may be quite pale gray, varying from this to almost black. This variation is largely due to the presence, in some of the loads, of portions of anthers, sand, etc. A great quantity of such "foreign bodies" is found in the dark-colored loads, less or none in the light-colored ones. It is possible, too, that the color of the pollen, like the quality of the nectar, may be affected by soil and climate.

Miss Betts says:

It appears that the color of pollen is also

MRS. G. SCHMIDT IN HER APIARY.

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greatly affected by the state of the weather. I have noticed that loads of chestnut pollen (*Castanea vulgaris*) are nearly lemon-yellow on dry days, but distinctly green shortly after rain. A writer in the Bienen-Zeitung of 1891, page 171, points out that the color of pollen varies with its age, and also with the weather. He describes the pollen of the opium poppy (*Papaver somniferum*) as green when young, becoming whitish when older. He also states that pollen secretes more oil on its surface on good nectar days; and suggests that the bees use this oil to stick the pollen together when collecting it. That they do this consciously is doubtful, especially in the light of Mr. Sladen's observations on how the corbicula is filled, but the more oily pollen would certainly stick together better; and this may partly account for the enormous loads carried home on fine days, and the very small ones seen in bad weather (though these last are probably also due to the scarcity of pollen on such days).

Some of the differences of opinion as to the color of pollen have arisen from the circumstance that a load of pollen, if kept, will often, as Mr. Macdonald points out, change color. On one occasion I took from a bee a load of bright red pollen (probably from a *pelargonium*, though I could not trace it). It was kept in a drop of water on a glass slip covered with a cover glass, and next day was no longer red, but yellow. The substance producing the red color had either evaporated or undergone some chemical change. (The drop of water had naturally dried up in the course of 24 hours.)

Lost All Her Bees

The reason you have not heard from "Ima" for some time is that she lost all her bees during the winter of 1911-12, and was unable to buy any near to start over. However, I think this spring I will buy several colonies, and you will be hearing from me with a tale of my experiences, for I expect caring for the bees, and there is nothing I like better than to write about them.

John is trying to persuade me not to get any more bees. He is still very much afraid of them. "IMA."

I am sorry that you lost all your bees, but glad that you have not lost your interest in them, and hope you may be very successful in getting that new apiary started this spring.

Experience With Many Eggs in a Cell

In the February issue of the American Bee Journal is an item entitled, "Cause of Many Eggs in a Cell."

In the spring of 1911 I had a swarm of bees whose queen laid drone eggs. I thought I would requeen the swarm, but could not find the queen. I tore the hive all apart, gave them a new body, looked the frames over very carefully, and shook the bees in front and watched them crawl in. I went back the next day and tried to find her, but could not.

Thinking that she was dead, I put in a caged queen. After leaving them alone for three days I went back and found the new queen dead. I opened the hive, and on the first frame I took out I found the old queen. I shut the hive up with disgust, and did not go near it for 10 days. I then found several queen-cells and more started from drone eggs. What became of that old queen I never knew. In another hive I had a good queen-cell. I gave it to them. In two days it hatched, and 10 days later I noticed that the queen was fecundated. In due time I saw worker brood capped over, and I can safely say I saw hundreds of cells with from two to eight eggs in a cell.

Later I looked into the hive and those cells had just one grub in a cell, and there were lots of cells with several eggs in a cell; even the sides of some of the cells had eggs on them. The swarm was very small by this time, so I gave them hatching brood from other hives. That queen laid several eggs in each cell until the swarm was strong in bees. That was one of my best swarms in 1912.

(MRS.) A. A. GOOD.

Lakewood, Wash.

This is a plain case of plurality of eggs in a cell because there was a prolific queen with too few bees to take care of all the eggs she could lay; just what usually happens in such a case.

ANOTHER VIEW OF MRS. SCHMIDT'S APIARY.

FAR WESTERN BEE-KEEPING

Conducted by WESLEY FOSTER, Boulder, Colo.

Bee-Keeping Upon the Divide South of Denver

There are many more counties in Colorado where bees assume an important role than bee-keepers realize. Upon the divide, south and east of Denver, is a beautiful country (for the plains) at an elevation of from 6000 to 7000 feet. This country, slightly rolling, has quite a little timber and a more abundant rainfall than the lower plains to the east. The Demonstration train made three stops—Elbert, Elizabeth, and Eastonville. Alfalfa is grown without irrigation, and produces considerable white honey. Sweet clover helps out more than it is given credit. The bees undoubtedly gather considerable honey from the wild-flower bloom in the neighboring hills.

Swarming is prevalent from May to September, and the farmers get little honey. "The yellow jackets get rid of the bees," they tell me, but I am of the opinion that the yellow jackets get rid of only those colonies that have swarmed themselves to weakness and late swarms that are so weak that they do not get honey in sufficient quantity to winter. A handful of bees issuing as a swarm in September is not an uncommon occurrence. What can be expected of such a colony?

Nearly every farmer has a few hives, and those who give them care are getting fair returns. The local market is not supplied except by honey from the heavier producing districts.

From my present knowledge of the markets, I believe that Colorado could consume a much larger percentage of our total crop than at present. The higher price obtainable in the eastern markets determines where the honey will go. Colorado markets are now comparatively destitute of comb honey. If some of the honey that has been shipped East was now available for the home market, a better price would be realized than was had the past fall. Bee-men want the money for their honey, and the local dealers will not buy the year's supply of honey outright, so the honey goes East.

It is possible that I may be a little hasty in saying that the comb-honey market is cleaned up in the West, but I do not know of any quantities at hand, and I do know that some fair

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markets for comb honey are very poorly supplied at this writing, March 10. Denver wholesalers quote comb honey to our Boulder merchants at $3.50 per case of 24 sections. This honey will probably grade choice or better.

THE ALEXANDER PLAN OF INCREASE IS A FAVORITE METHOD IN COLORADO.

KEEP ALL WAX AND PROPOLIS REMOVED FROM THE FRAMES.

Sweet Clover Gaining Recognition

The lowlands along the Arkansas River, near Holly, Colo., are being taken by sweet clover apparently. This land is alkali in places, and the farmers are getting feed value out of the clover instead of fighting it. Lord Ogilvy, agricultural editor of the Denver Post, recommends the growth of sweet clover on this land. The interest in this crop is such that it seems a sweet clover institute would be welcomed.

Shallow Frames for Producing the Home Supply of Honey

There are probably a few thousand farmers in Colorado who have bees. The majority have modern hives arranged for comb-honey production, or section-holder supers to put on top of their box-hives. These farmers use a large part of their honey at home, cutting it out of the honey-boxes and putting them back on the hive. How much better it would be for them if they would use shallow frames in the supers. More honey would be secured, and the expense for sections avoided.

This is one of the things being shown on the demonstration train now touring Colorado for a month's trip. Mr. Frank Rauchfuss has advocated this plan for the farmers for some time. It is being followed by quite a number.

THE MONUMENT PLANT—A MONARCH OF THE MESAS.

Monument Plant

The monument plant has light creamy blossoms 2 inches in diameter; the flower stalks growing 2 to 3 feet tall is visited by scores of bees. A velvety green leaf makes this a brilliant desert flower. Any park would be graced by its presence. The mesas are dotted here and there with them, and as a source of honey during May, the monument plant is important.

Many on first sight call it the yucca, which it is not, as it has not the spine-shaped leaf. The monument plant is "monarch of the mesas," as no stock will eat the leaves. Perhaps you can find the bee on the blossoms.

Honey Recipes

Three thousand copies of the following recipes by Mrs. A. Rauchfuss, were given out on the Colorado Agricultural College demonstration train carrying a bee-keeping exhibit:

HONEY BROWN BREAD.—One cup corn meal, one-half cup honey, one cup rye meal, one cup sour milk, one teaspoonful salt, one teaspoonful soda. Steam four hours, then dry in oven 15 minutes.

AURORA HONEY COOKIES.—One cup of honey, one pint sour cream, one even teaspoonful soda dissolved in a tablespoonful of boiling water.

Mix honey, cream and soda together thoroughly, add a cup of chopped nuts (any kind desired), one teaspoonful of

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ground ginger, and a heaping tablespoonful of ground cinnamon. Add flour enough to make a dough stiff enough to handle easily on the board, roll out part into buttered tins and bake in a moderately hot oven until nicely browned.

HONEY GINGER SNAPS.—One cup of butter, one cup of sugar, one cup of honey, one cup of water, one heaping tablespoonful of ground cinnamon, one scant teaspoonful of baking soda.

Sift soda into 1½ pints of flour, cream the cup of butter with the sugar, add other ingredients and more flour to make a dough that can be rolled out. Cut into desired shape and bake in a moderate oven.

SEA FOAM CANDY.—Two-thirds cup of honey, three cups granulated sugar, whites of two eggs, one-half cup boiling water, one teaspoonful of vanilla, one cup of nut meats.

Boil honey, sugar and water until if tested in cold water it is brittle. Pour this in a thin stream over the whites of two well beaten eggs, beating the whole all the time until like a thick cream, then stir in briskly the nut meats and vanilla, and pour out into a buttered dish. After it has hardened cut into squares.

Spring Meetings of the Colorado State Bee-Keepers' Association

The Western Slope in Colorado is so remote from Denver, where our conventions are held annually, that few of our members there can get to them. A spring meeting of bee-keepers, held under the auspices of the Colorado State Bee-Keepers' Association, is being arranged for the Western Slope, probably at Delta, and one may be held at Grand Junction. The meeting will be held in April. Particulars may be had from the secretary, Wesley Foster, of Boulder. Notices will be printed in the local papers. These are aimed to be bee-keeping institutes for discussion and questions.

SOUTHERN BEEDOM

Conducted by LOUIS H. SCHOLL, New Braunfels, Tex.

Prospects for an Early Season

The winter here has been unusually fair, with very little severe cold weather as compared with former years. The cold weather was of short duration, but much rainy weather prevailed, This tends to bring an early spring. and early honey-flows. The catclaw, "guajilla," and mesquite, all early honey producers, are all three benefited by fall and winter rains. Therefore, the prospects for a crop from these sources are very bright.

A peculiar circumstance is that, although the winter has been warm, the mesquite trees, etc., have not shown any signs of coming out of their winter dormancy. The buds have not begun to swell, while many trees are in foliage by the beginning of March. I have noted this dormant condition of the mesquite trees in previous years. When the buds do begin to swell they develop with such rapidity that the entire mesquite trees are soon covered with a profusion of luxuriant nectar-yielding bloom, with hardly time to get bees in shape for this early flow. I anticipate such a condition this year unless late frosts should interfere. This is hardly to be expected. The prospects are good, and following the short crop of last season, the bee-keepers feel very much encouraged.

Bee-Keeping in Mexico

There has been enquiry about bee-keeping in Mexico, and it has been our purpose to collect such data as might be of interest. On account of the present disturbances in that country, however, we have not undertaken this work. But through the acquaintance of several friends in Mexico, some of whom have studied the bee-keeping industry of that country, we shall be enabled to procure some reliable notes of existing conditions, which we expect to give.

There is no doubt but that much nectar is going to waste in many Mexican localities, which might be profitably secured by progressive and adventurous bee-keepers. Whether it can be made to pay is what must be investigated. For this reason it is highly important that the market situation be looked into properly, both as to demand that might be worked up for the product obtained, as well as the price and distance to market and cost of transportation.

It is apparent, from the several inquiries received, that much interest would be given to the matter of Mexico bee-keeping if conditions there were not so unsettled. It will be only a question of time when every thing will be quiet again in that country, and this will very likely be followed by some progress in Mexico's bee-keeping conditions also.

We would be grateful to all who can give us any information on bee-keeping in Mexico, to kindly write us. Direct to New Braunfels, Tex.

Net or Gross Weight of Honey Packages

The question of proper weight of standard honey packages is becoming more serious each year. It is time the bee-keepers "get together" and come to a final agreement regarding this very important matter. The demand for packages holding full net weight of honey to the can or pail is increasing. The largest buyers of honey are careful to put into their enquiries regarding prices, a proviso of full net-weight packages, and require a guarantee of this from producers.

We have experienced some trouble with a few buyers who did not understand that a certain size package on the market could not be filled with the desired amount of honey because that package was not large enough to hold it. The only way is to procure packages that will hold the proper amount. The pure food laws require it, and this would not only protect the consumers, but also the bee-keepers who are aiming to give full value for the money. Many bee-keepers sell what is known as *short* gallon, half gallon and quart cans of honey. There would be nothing wrong with this if it was made known that these packages were actually short in weight. But when the individual containers are not labeled the discovery is not easily made. But it is not fair to those producers who put out the same kind of packages holding full net weight, 12 pounds to the gallon, 6 pounds to the half gallon, and 3 pounds to the quart can.

Especially is the difference noticeable in the crop of an extensive honey producer. For instance, if one bee-keeper markets a crop of 50,000 pounds of honey in the size of packages mentioned, and he gives full weight, it means a loss of several hundred dollars to the honest packer, as against the man who gives short weight. Both producers and buyers are familiar with the standard size packages of honey, universally put on the market. There are the two 60-pound square cans to a case, ten 12-pound round pails to a case, and ten 6-pound, and twenty 3-pound to a case. The producer quotes his honey at so much per pound for each according to style of package, viz.: so much per pound for two 60-pound cans to a case, so much for ten 12-pound pails to a case, and so on. He makes out his invoices, bills, etc., for 120 pounds of honey in each case, and 60 pounds for the ten 6-pound and twenty 3-pound cans. On his cases he may also have the same indicative figures, showing either two 60-pound, ten 12-pound, ten 6-pound, or twenty 3-pound cans of honey to the case.

Since the buyers make their orders in the same manner, or so many cases of two 60-pound cans, ten 12-pound pails, or 6-pound, etc., at so much per pound, it would indicate that both producer and consumer allude to actual contents of honey in each case. It would be only natural to suppose the two 60-pound cans of honey to a case would mean 120 pounds of actual honey, especially since the buyer is charged for 120 pounds at so much per pound. Nothing is said about the weight of the cans or about a charge for the containers, or the short weight of honey, should full weight packages not be used.

We bring this matter up, first, to aim at an adoption of proper sizes of honey packages for all alike; second, to make it fairer for every bee-keeper, so one need not lose or be compelled to compete with others who make use of short-weight packages, when the former furnishes full weight, or desires to do so for honesty's sake; and, third, that no trouble may arise with reference to complying with the pure food laws.

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CANADIAN BEEDOM

Conducted by J. L. Byer, Mt. Joy, Ontario.

Noxious Weeds as Honey-Producers

On page 46 of the February issue, is given a list of noxious weeds banned by the State of Iowa, with the statement that none of them, fortunately, are honey-producers. Mr. Editor, you had better scrutinize that list again. What about wild mustard? If it is the same mustard that grows here in the grain fields, that weed is a fine honey-yielder, as many bee-keepers will be ready to attest. Then what about milkweed? Here is one of our most profuse yielders of nectar; but in most localities it is not plentiful enough to cut much of a figure in the surplus.

It takes quite a heavy toll of bees, while they are working on the plant, owing to the peculiar glutinous, stringy pollen; yet I would be glad to have a few hundred acres within reach of my bees, as the one locality where it is plentiful always thrives when it is in bloom. Then what about the much maligned Canada thistle? While we do not cultivate this plant, nevertheless where it is plentiful enough to be of any account for the bees, it yields the most delightfully flavored honey that can be produced, and its color is in keeping with the flavor—very light.

At the Lovering yard, illustrated in the February issue, the thistles are plentiful in the rich bottom land that surrounds the apiary, and last season they blossomed freely when basswood was in bloom. The resultant honey is a blend of basswood and thistle, and we are using it on our table in preference to any other; in fact, Mrs. Byer, who is very particular as to the honey she uses, declares it has spoiled all chances of her ever preferring any other honey. A number of friends who have been at our place this winter, declare it tastes like the "bumble-bee honey they used to have when they were young." To all who were brought up on the farm, it will be needless to describe what they mean by the phrase, as it has to be realized to understand the description.

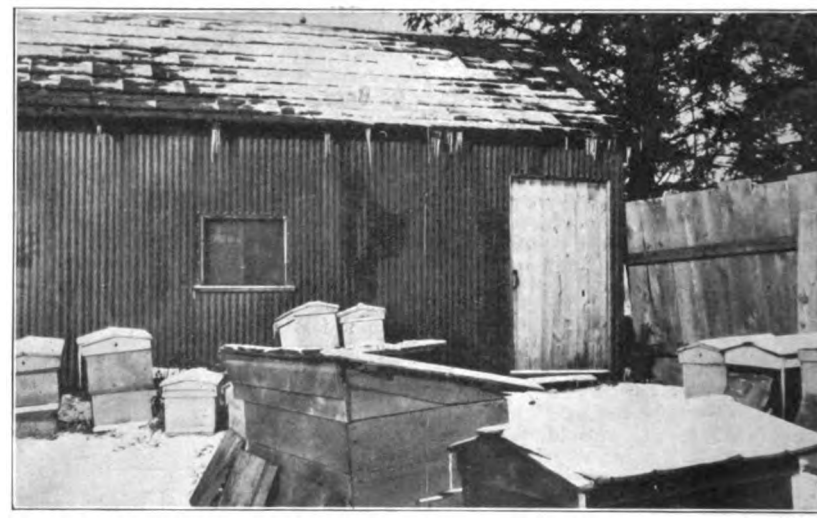
A Honey House

As the building used at the home apiary was very old, the foundation rotten, and the roof beginning to leak, I decided a year ago to put up a new building. Being very busy, and unable to get dry lumber, I decided to build the house of corrugated iron. This iron is painted red, and is sold by manufacturers of metal roofing and kindred goods. The shingles are also metallic, and painted the same color as the siding. How it will last remains to be seen, but if kept well painted I am told that the metal will stand the weather for a long time. It may be asked, is it not hot to work in it during warm weather? We have found no trouble from that source when the windows are all open, as is the case when extracting. The windows are large, 24x30; there are two in the west side, one in the east side, in both ends, and we get all the breeze there is. When the windows are closed, and the weather hot—well, it is a good place *then* to keep extracted honey.

The windows are screened on the outside, the screens being removable. Inside they are closed with a sliding panel, and bee-escapes can be placed in frame of outside screens as desired. The foundation is of concrete, and the floor is also of the same material, so there is no danger of the floor breaking through. The building is 14x20, with 8 feet siding, and the cost, no counting gravel for floor and walls, was about $60. This includes all labor except the hauling of the gravel and two days' work when I helped to lay the floor and do a little excavating for the walls.

Picture No. 1 shows the west side of the building; the trees on the south side are Norway spruce that have been trimmed up about 25 feet, to allow the sun to shine in the yard. The other picture shows the east side, next to the bees. As will be noticed, the window on this side is a long way from the door—a very desirable feature in any honey house, as the bees do not bother around the door so much, being attracted to the screened windows. Indeed, when the windows are all opened a bee seldom tries to get in the door, even if we are extracting during a dearth. Owing to the corrugations in the siding, it was necessary to put beam filling of cement concrete mixed fine along the plate at the top and along the sills at the bottom, to prevent bees from getting in the openings. If plain

A Metal Bee-House.



A Corner of Mr. Byer's Apiary.

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iron is made for building purposes, this could be avoided, as it would nail down tight to the plates and sills. The hives right against the building are some empty ones—only a few of the occupied ones appearing in the corner of the yard, with shade-boards leaning against the entrances.

Value of Willows

The different varieties of willows are all valuable to bee-keepers, as nearly all yield pollen, and some are very heavy yielders of nectar. They are very easily propagated, and will stand very hard usage in early growth; in fact, will flourish under circumstances that would kill other trees outright. The view shown in the picture was taken from our door-step. For years this flat was pastured closely, and everything in tree life was destroyed. Five or six years ago his flat was left for hay, and now willows are springing up all along the banks of the stream, even if floods of ice do wash against the young trees every spring.

WILLOWS ARE GOOD FOR THE BEES.

In the center of the picture the willows can be seen along the frozen stream, and down near the brush where the stream winds along the bank these willows are 25 feet high.

A camera helps one to appreciate Nature. The landscape above is the view shown from our door. While I have often seen travelers, in the summer time, stop and take a picture of these flats, I never appreciated the beauty of the place until I had taken a picture myself.

Bee-Work in Winter

Replying to Miss Wilson, page 83, I would remind her that I spoke of "real work in the apiary." Yes, I make plans, "build castles in the air," etc., during the winter months. I often spend the hours from 5 until 7 o'clock *in bed* at this planning, when, in the summer time, I would be out-of-doors. I read a lot, and write quite a bit, but then all this planning, reading and writing is not real *work* to the chap that is outdoors all summer hustling. Producing extracted honey we have no sections to fill with foundation, and as for scraping all the extracting combs, we do that in April and May on days not fit to work with the bees.

The Odor of European Foul Brood

Regarding *smells* associated with European foul brood (page 42), to some people especially on the other side of the line, the disease is not repellant to the olfactory nerves, while here in Ontario it is obnoxious to an extreme degree. It was my lot to find the first bad cases in Ontario, and I agree thoroughly with Mr. Pettit and Mr. Harris. After learning the disease with its characteristic odor, my *nose* was all I needed to tell if European foul brood was present. A badly diseased apiary could be smelled 100 feet if the wind was right, and a mildly diseased colony could be detected by placing the nose at the entrance. The latter test is a good one for American foul brood, too, provided the top of the hive is sealed closely to avoid upward circulation.

I have read again what friend Sladen, of Ottawa, Ont., said about the question, and now the whole solution of the problem is plain to me. Mr. Sladen admits the smell is "extremely strong," and that a "penetrating odor is given off" from a foul colony, *but* he further states that, to *him*, the odor was "gamey" and "appetizing."

There, you have the situation in a nut-shell. To friend Pettit, as well as myself and a number of other Canucks, the smell of European foul brood is highly obnoxious. To Dr. Phillips and a number of other friends, it is a "gamey" odor, and "appetizing" in its effect. "Tastes differ, as the old lady said when she kissed the cow."

BEE-KEEPING IN DIXIE

Conducted by J. J. WILDER, Cordele, Ga.

Do Bees Consume More Stores in Mild Winters?

My experience is that they consume less, and at the same time rear more bees. This had been an unsettled question with me, but the past winter has settled it. It was one of the mildest winters we have experienced, and much of the time the bees were as active as in spring. They have consumed far less stores than ever before. The brood-nest contains lots of honey; in fact, too much for brood-rearing, and we have removed it.

From reports, many other Dixie bee-keepers are experiencing the same thing (too much honey in the brood-nest). Remove the heaviest broodless combs and put empty ones instead. Owing to the late heavy honey-flow last fall the bees were a little heavier with stores than usual, but an unusually small amount of stores was consumed.

Wintering in Florida

After taking a look at the photograph on page 16 of the January number of the American Bee Journal, many bee-keepers wrote me they wished they could be with me in the land of flowers. A number visited me, and we had a good time fishing, launch riding and oyster gathering. The beautiful shell beach for miles along the coast was our "stamping ground." We visited orange groves, etc. They were happy and well spent hours, but the bee industry was our hobby, and much valuable information was exchanged.

There were bee-keepers with me from all parts of the country, and even far off Canada was well represented. The country and climate proved an attraction to many. They invested in real estate, and expect to spend the winters there.

Apiary Work

The honey-flow is now on in almost all parts of Dixie. Bees are swarming, and must have constant attention for the next few weeks, looking out for swarms, keeping hives supplied with plenty of super room. This can best be done by raising the supers they have and inserting the new below, next to the brood-chamber. This should be kept up for 3 or 4 weeks; then let them fill all the supers they have started.

Almost all bee-keepers in Dixie use but one super for each colony, when they should have three, so the bees do not store much surplus and swarm too much. Plenty of storing room will check swarming and keep the bees at

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work, and far more honey will be harvested. If the hives are elevated from their bottoms by means of a ⅞-inch square strip placed under each side the same length as the hive, it will give good ventilation. This will also check swarming and loafing, or lying outside. Now is also a good time to make artificial increase by dividing the colonies that have started queen-cells into two equal parts; if possible leaving the queenless part on the old stand.

This equal dividing of brood, bees, and honey cures colonies of the swarming impulse, and, as a rule, the two divisions will store more honey than if left undivided. They make the best colonies for the next flow during summer or fall.

The Orange as a Honey-Plant

This includes all citrus fruit; the orange, lemon, lime, cumquats, tangerines and grape-fruit. This fruit grows extensively in many sections of southern Florida, and furnishes abundant pollen and nectar for the thousands of colonies that are located there. In some localities it yields on an average as much as 50 pounds per colony of surplus honey, which is a very light amber, has a heavy body, and very fine flavor. The taste is correspondingly exquisite, with the odor of the blossoms which cannot be excelled. What adds much to its value as a honey-plant is that it begins blooming in February and lasts for 6 or 8 weeks, covering a period of time when there are no other honey-plants in bloom.

The bees build up during this flow, and at its close the saw palmetto begins blooming. This is the greatest honey producer along the coast of Florida. Aside from its value for honey, it has no equal as a fruit producer. Take a look at the photograph, and see the trees so laden with the delicious golden-colored fruit that the limbs rest on the ground. Nothing makes a more beautiful picture to me than groves containing hundreds of acres of this great fruit. The man standing on the right is Mr. E. B. Rood, of Bradentown, Fla. The others are his fruit pickers, rigged up for business. Mr. Rood is an extensive bee-keeper and fruit grower. Thousands of people come here from all over the United States during the fall and winter months and engage in gathering, sorting and packing this fruit. They have a delightful time during the winter in this ideal climate, and return the following spring with a heavier purse. Many of them are bee-keepers who appreciate a good thing.

Eight or Ten Frame Hives?

DEAR EDITOR:—On page 16, of the January number, you call me out for preferring 8-frame hives. I do not allow natural swarming, so the size of swarms that may go out is of no consideration. Then if you refer back, you will see that an 8-frame hive-body and a regular shallow extracting super compose the brood-nest. Why couldn't I expect even larger swarms than from a regular 10-frame hive?

As has been shown, the 10-frame hive-body is too small proportionately, and is prohibitive of rapid manipulation, especially where there is much propolis. Nor does a 10-frame super make an ideal storing department for my locations, for it takes the bees too long to fill outside frames or sections, and by the time they do, the middle comb is travel stained. Such is not the case with an 8-frame super. It is filled much more quickly and evenly.

In some of my locations where there is a slow honey-flow, bees store but little if any in the supers above a 10-frame brood-nest, and when they do, they fill a comb at a time, or start on one side and fill one section at a time, as if plowing a field. The result is anything but satisfactory. I have bees in many different locations in the South. I have tried 10-frame hives in all of them, and they are not satisfactory to me.

PICKING CITRUS FRUIT IN THE SOUTH.

Diseases of Bees.

Foul Brood

BY J. E. CRANE,

Vermont State Inspector.

The greatest drawback to successful bee-keeping at the present time is *foul brood*. There are large areas of our country that are free from disease, and others where there is but little disease; and yet I fear that there is more in many localities than we now suspect. Over most of the northern States inspectors have been appointed. and are working each in his own way with but moderate success. There have been conventions of inspectors to discuss the best methods of combating the evil. While such gatherings are good, they are often at such a distance that many inspectors find it difficult to attend.

I have been wondering if a department of one of our bee journals might not be profitably used for the interchange of opinions among inspectors, for the discussion of many points of interest connected with inspection work. I believe our methods for the production of honey, either comb or extracted, are up to the standard of what they should be, and it is comparatively easy for one to get information.

But when it comes to foul brood, especially European foul brood, how many questions I should like to ask some person with more experience than myself, as to the best method of meeting the various problems that come to an inspector or the enterprising bee-keeper! Shall the work of the inspector be educational rather than simply to suppress the disease wherever he may find it? If the latter I fear it may not prove of much permanent value, as to do so would often destroy every colony in a given district. To teach the bee-keepers how best to combat the disease, although slower and requiring more patience, may in the long run produce better results. Some respect should be paid to the intelligence and interest bee-keepers take in the subject themselves.

Two bills were introduced into our Vermont Legislature during the past session for the suppression of contagious diseases among bees. One was an amendment to our present law that made it the duty of the inspector to visit each yard where disease was found, in 20 days from his first visit, and burn every diseased colony found. If he did not do it, he should be removed and another inspector appointed in his place. This because it was thought the inspector had not been severe enough. The other bill

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was introduced from another part of our State, repealing our present law for its severity, and a new bill introduced, allowing the inspector to make but one inspection, and that only before the first of June. This because the inspector had been too severe. It was necessary to appear before the agricultural committee and see that neither bill was reported favorably. We have a very good law as it is, and if bee-keepers will co-operate with an intelligent inspector, our State may in time be made comparatively free from disease.

What is the most practical method of disinfecting hives or tools with which we have opened diseased hives? I have heard that some thought it necessary to boil tools in water for half an hour before going to another apiary. Yet it would seem that disinfection of tools was often quite as necessary in going from one hive to another. The boiling method, no doubt, is sure, but requires so much time it is doubtful if it is often followed, or even practical.

Is it ever safe to put one colony into a hive where there has been disease without first disinfecting it?

How much dependence can be placed on Italian bees to control or subdue European foul brood?

Is it safe to change comb honey supers from a diseased hive to a healthy one?

Are queens ever of any value that have been reared in a foul-broody colony?

Where shaking is resorted to, is it necessary to shake on frames of starters as most inspectors advise? Why not just as well shake into an empty box and save time and bother?

Does European foul brood spread in any other way than through the diseased honey, and if so how? We know it moves more rapidly than American foul brood, but why? Can any one tell us? These and other questions come to me as I think the subject over. Each individual inspector has experiences that will often throw light on something of which another can get no clue.

The Agricultural Department at Washington has given us a great amount of technical knowledge of brood diseases, and the question how to put into practical work the knowledge we now have is of great importance.

Middlebury, Vt.

[The foregoing article has struck us as so timely and judicious that we use it to open a department hereafter to be known as "Diseases of Bees." Mr. Crane is one of our oldest and most practical apiarists. We find his name in the American Bee Journal as far back as 1879, when he was president of the Addison County (Vt.) Bee-Keepers' Association. He could already give good advice, and was probably then an up-to-date bee-keeper. We urge apiary inspectors from everywhere to bring their experiences to this department. We want short, pithy statements, so the reader may get at the facts without loss of time. The disease question is a serious one.—EDITOR]

Illinois State Inspection

BY A. L. KILDOW, CHIEF INSPECTOR.

On entering on my work as State inspector, I found that the inspector who served before me kept no records, and I had to make a new start.

First, I sent letters to different sections of the State, enquiring if disease was known in those parts. With the replies and information from other sources I started out. As conditions became known, and the work broadened, I hired deputies as needed, until last season I had 10 deputies doing more or less work. There is need of more, but our funds will not permit. Thus we are handicapped to a great extent. In appointing deputies in different parts of the State, I aim to cut down expenses, and consequently they are not expected to go far from home.

The work of the inspector is mainly educational. It is his duty to teach the bee-keeper how to detect the various bee-diseases, how to treat them, and to so instruct him that he may know the first symptoms of disease should it appear in his apiary.

The amateur is the most needy, as his eyes are not trained to detect symptoms that would cause a colony to become worthless. There are many little points that the inspector can give to the amateur that otherwise would take him years to learn, and the sooner he can be educated the better. The inspection work has also been handicapped because we had to act the detective, and hunt up the bee-keepers. As a rule, they have not co-operated with us. Many appear to be afraid of the inspector, and would rather not have their bees examined, for fear disease might be found, and they would have to clean up, and the thought of having to clean up is a "bugaboo."

This only applies to the small bee-keeper and the farmer, who thinks he has all he can do without (as he says) fooling with the bees. As a rule, we have no trouble with the man who tries to make something out of his bees. He is willing to learn. The specialist knows that he must keep his colonies in good condition or he is the loser. If he has never had disease in his apiary, he is posted as to what it is, and it is not likely to make headway before he discovers it, and he makes short work of it.

On July 24, I visited the home of a man who had opposed our foul brood law, and who is one of Chicago's large bee-keepers. I had heard that he would serve an injunction on me if I came on his place; but for all that I made the visit. When I arrived at the house I found him in the midst of extracting, and very busy. Instead of serving an injunction, he treated me with as much respect as I have received at the hands of any bee-keeper. His plan in the treatment of foul brood is: In the spring he goes through all his colonies (in May), and every colony that shows even a single cell diseased is marked, and if it is in the out-yard it is brought to the home yard, and there looked after. Every colony is shaken, and the honey extracted and the combs melted. While he may never get entirely rid of foul brood, he will so keep it under control that it will not materially injure him. Before I left, he told me that if I could come back the last of the week he would have more leisure, and would take me around. The bees in his home yard are a good grade of Italians.

Bee-keepers in general should keep better bees. With disease all around them they must be up to date in everything pertaining to bee-keeping, if they wish to realize anything from their bees. Very few places are overstocked with bees. My own locality comes the nearest to it of any that I know; perhaps this is because I am better acquainted with my own neighborhood. I do not believe I am over-stating when I say that ten times as many colonies could be kept in Illinois at the present time, and kept to advantage. Besides keeping more bees and better bees, we are advised to keep our bees better.

This need was plainly demonstrated to me by finding bees kept in every conceivable way, some in plain boxes, others in boxes with slats nailed in top and bottom, some in good frame hives with no foundation, and the

WHERE SAGE, SUMAC, WILD BUCKWHEAT AND ORANGE BLOOM, AND COOLING OCEAN BREEZES BLOW THROUGH MOUNTAIN PASSES WILD.

Nature blessed this land of ours with sunshine, rain, fruit and flowers.—L. L. ANDREWS.

American Bee Journal

combs built crosswise, some in barrels, and in one case an old trunk was used. I did not go into this. The condition of the bee-yards varies as much as the hives.

Besides the regular inspection work and treatment, it is the plan to have as many demonstrations or "field days" throughout the State as the conditions will justify. In my opinion, this is the practical and educational part of inspection, and I earnestly ask all bee-keepers for their hearty co-operation.

Putnam, Ill.

CONTRIBUTED ARTICLES

Spraying Trees in Bloom

BY H. F. WILSON,

Assistant Entomologist, Oregon Agricultural College.

MR. W. H. VOLCK, Horticultural Commissioner of Santa Cruz Co., Watsonville, Calif., in the January number of Better Fruit, under the heading of "Caterpillars, Codling Moth, Aphids," pages 16 and 17, makes the following statements: "Owing to the very early attacks of tussock caterpillars, canker worms and leaf folders, the first sprayings should not be delayed until the blossoms have all fallen, but applied while the trees are in bloom. The period from full bloom to the time when two-thirds of the blossoms have fallen *appears* to be the most practical timing. *Spraying with good arsenicals will cause no injury to the blossoms.....* Apply the first spraying when the trees are in full bloom to the time when two-thirds of the blossoms have fallen."

Note that he states that the time mentioned *appears* to be the best. This recommendation, which is undoubtedly given on reliable data and experiments, is a very dangerous one for both the bee-keeper and the horticulturist. Certainly such a practice causes the destruction of insects which feed upon the nectar of the blossoms, and climbing over them in search of it, aid in pollenization. In localities where it is followed the honey-bees will be destroyed. One of our local bee-keepers suffered such loss from the spraying of a single orchard that he was compelled to move to a different locality.

It is a common recommendation of this station to suggest bees for the orchard and farm, both for cross fertilization of fruits and the surplus honey. In view of this recommendation, I will state that in Oregon we have the tussock moth, canker worm, and several caterpillars which cause more or less damage to the fruit, but only in one instance have they caused enough damage to make it necessary to consider methods of control other than those now in use.

In localities where it becomes necessary to combat these early-feeding caterpillars, the spray should be applied *before* the blossom buds open. At that time the young caterpillars will be more easily destroyed than a week or 10 days later. There may be some opposition to this extra application on account of the cost, but surely the value of the cross-fertilized fruit over the self-fertilized will be more than the cost of spraying.

Just how much we can depend upon the wind and air currents for distributing pollen is hard to say, but several investigators have carried on experiments which tend to show that not as much pollen is distributed in this way as one would expect.

I suggest that the fruit-growers of every State be careful about spraying when the trees are in bloom.

Corvallis, Oreg.

The Iowa Program

BY FRANK C. PELLETT.

Iowa State Inspector of Apiaries.

THE Iowa State Bee-Keepers' Association bids fair to become one of the strong organizations of its kind. The members are live wires, and propose to place the bee-keeping industry on a par with other agricultural pursuits in Iowa. Lack of organization has given the impression that bee-keeping is at a low ebb. But the census shows nearly 30,000 bee-keepers on the farms of Iowa. Those occupying less than three acres, the limit set by the census bureau of the smallest area composing a farm, were not reported by the census enumerators.

As a result, while more than half the number of persons keeping bees was reported, probably not much more than half of the number of bees and product is shown in the census figures. Many of Iowa's largest honey-producers live in the towns and occupy less than three acres of land. Any business in which 40,000 people are engaged, even in a small way, is worthy of more attention than has been given by the State of Iowa.

Nothing is being attempted at this time by the association that all members present at the convention did not agree upon. The things that are now being urged are:

First, an appropriation of funds for bee inspection, to be administered under the direction of the State Entomologist. It is believed to be the best plan to take the appointment of inspectors and administration of the funds of the office entirely out of politics.

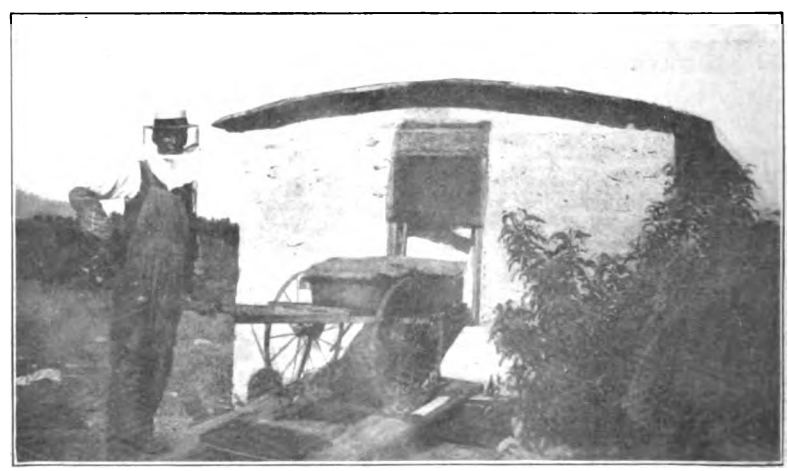
Second, the establishment of a chair of bee-keeping at the agricultural college. The authorities of the school favor this move, and it might have been done before had there been any outside interest apparent to justify it.

Third, the employment of a lecturer on bee-keeping on the extension force to appear before farmers' institutes and other assemblies. This has already been done temporarily by the appointment of C. H. True, of Edgewood, for the present winter season. It is expected that a regular lecturer will be permanently employed before long.

Fourth, the passage of a law prohibiting the shipment of bees from other States into Iowa without a certificate signed by some authorized inspector, showing that they are free from disease. The Peterson bill, now pending in the Legislature, carries this provision.

Fifth, better premiums and better facilities for exhibiting at the State and County fairs. The secretary, acting on instructions from the convention, has already written to the secretary of every county fair association, calling attention to the fact that bee-keeping is not receiving the attention it deserves at the fairs, and suggesting a premium list suitable for such exhibitions.

Good results are expected from this campaign. A committee was also appointed to confer with the State Fair board regarding the exhibits at the State Fair. We expect favorable attention from this body, and hope that a separate division of bees and hive products will ultimately be established with a satisfactory place for exhibition



L. L. ANDREWS WITH COMBS OF HONEY READY TO GO INTO HOUSE FOR EXTRACTING.

American Bee Journal

of our products and a creditable premium list.

As fast as these results are attained others will be attempted. A bulletin is now in course of preparation by the Agricultural College devoted to opportunities for bee-keeping in Iowa.

The Iowa bee-keepers welcome scientific bee-keepers, and desire them to join the association. We fear no competition from this kind of men, and feel that our interests are mutual. On the other hand, we already have several thousand too many shiftless bee-keepers who have a few colonies in a fence corner where the weeds grow 10 feet tall, and which are not examined from one year to another. Such colonies serve to breed moths and foul brood sufficient to keep the careful man on the anxious seat all the time.

Watch the Iowa association move into the front row. Every bee-keeper worthy of the name owes it to himself, and the cause of honey-production, to join the society and lend his influence to the work outlined.

Atlantic, Iowa.

Dead Larvae Among Live Brood

BY D. W. MILLAR.

IN THE February Bee Journal, comment is made editorially on "Dead Larvæ Among Live Brood," and "Causes of Many Eggs in a Cell."

Now, strange to say, I have a similar case of each in the same hive. The dead brood has bees hatching all around, apparently healthy, also eggs and unsealed brood in adjoining cells. I have already sent a sample to Washington just as described. The dead brood in this form is not uncommon with me, but never has been fatal, and the temporary weakness is in time overcome and the colony none the worse. It occurs more in weak colonies or nuclei that I am building up. There are no symptoms of foul brood so far as I can see, and the department at Washington may be familiar with the cause.

In the hive from which the sample of brood was sent, I at first thought the queen was missing and that a laying worker had developed, as many of the worker-cells contained from two to four eggs, but there were no eggs at all in the drone-cells. Not caring to unite until I had heard from Washington, I decided to try the shaking plan to get rid of the laying worker, but was not thoroughly satisfied that there was one, so I took a seat and prepared to make a thorough search for the queen once more. She was found, and was to all appearances a fine one. The colony I built up from a nucleus reared and mated the queen, and since the nucleus was formed there has never been a change of queen, and she has never stopped laying, to my knowledge. Cells with more than one egg are to be found not only on one frame, but on nearly every one where there are eggs at all.

Might not this be a very prolific queen? and, being weakened, the colony is short of bees to clean up and look after a larger brood-nest, and she just cannot help laying, so gets rid of the overflow by doubling them up? When seen, the queen would give one that impression, as she seemed to be fertile, and there were no drones at all in the hive, and young bees, as I say, hatched all around the eggs, dead larvæ, and unsealed brood. The drone-cells, of which there are a few in the hive, have no eggs whatever in any of them. I will not worry about the queen, for I believe that when other things are adjusted she will be all right; but the dead brood has had me a guessing for some time.

Bartle, Oriente, Cuba.

[This may or may not be the same as Mr. Townsend speaks of. Even if it never proves fatal, it must weaken a colony. Please let us know if you learn more about it. The duplication of eggs, as you surmise, probably has nothing to do with the disease.

You speak of *a* possible laying worker. When this nuisance appears it does not appear singly, but in numbers.

The following letters refer to similar facts. Evidently, when disease is found the bee-keeper should not at once conclude that foul brood is present. In reporting these cases it would be well for the bee-keepers to make note of the conditions otherwise, whether in time of scarcity of crop, and whether the colony has plenty of stores. The assertion of some writers that sometimes the nurses are stingy and do not feed the brood sufficiently might have to do with some of these cases.

The evidences are more and more in favor of the Italian bees of pure race: —EDITORS.]

I had some experience with dead larvæ among live brood last summer. It was a colony with a black queen. About one-half of the brood was dead. The queen was put on trial and convicted, and death sentence passed. I sent for an Italian queen, which arrived about the middle of June. The black queen was killed, and the new one introduced, and in a week or 10 days the dead brood was all cleaned out and the combs filled with nice, pearly brood. I don't know the cause, but I hit the remedy.

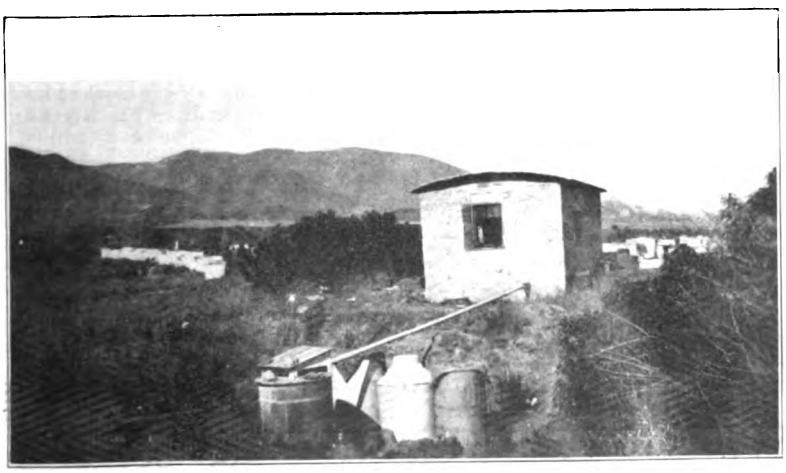
Festus, Mo. S. B. REYNOLDS.

About dead brood in one colony and none in the other. We had the same thing in our apiary last summer. The brood was scattered all over the combs of the affected colony. Some of the cells were filled with brood and some not; some dead and others alive. We became alarmed and moved every comb that had brood from the hive and gave other brood combs, but to our surprise the same thing happened over again. Then I thought it was owing to lack of bees, as the colony was not very strong, and I watched and found this to be the case. I then sent for another queen, put her in the hive, killed the old one, and took all the brood from the hive, giving half sheets of foundation instead. The new queen commenced to lay in three days after we put her in. The colony drew out the three frames of starters, the queen filled everything with eggs, and we had no more trouble with dead larvæ. We think it the fault of the queen.

Ottumwa, Iowa. GREGORY & SON.

Concerning dead larvæ among live brood, this is a seemingly natural trouble. I have it to contend with here in my section. Your quotation from Mr. Townsend would be a fair description of the conditions as they exist in my apiaries during April, May or June. I think this trouble is partially or nearly cured through an application of daily feed, and I believe breeding from colonies that seem to be free from the trouble would come nearer to a permanent cure. B. A. ALDRICH.

Smithland, Iowa.



L. L. ANDREWS' TANKS FOR STORING HONEY.

No Glucose in Bee-Candy

BY W. S. PANGBURN.

I NOTE with interest that the New York bee-keepers object to the use of glucose in bee-candy (page 58), and they are right. I never read about that "new discovery" of making bee-candy, using part glucose, but what I feel like getting up and saying *No*. It would be a slur to the industry. Pure honey and pulverized or

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granulated sugar, or loaf sugar, have given general satisfaction.

I have bought quite a few queens, some of them coming long distances, and they were received all right, so far as candy was concerned.

If we use glucose for bee-candy, and bee-keepers adopt it generally, the next thing will be a big advertisement in the Ladies' Home Journal, or some other periodical, setting forth the good qualities of glucose, and stating that bee-keepers are using it in place of honey in making bee-candy, showing they realize its superiority over honey.

Brother bee-keepers, let us keep a clean record, and for the good of our business don't mix up with one of the worst things we have to contend with and give any chance for censure. The glucose people are very keen to grasp these ideas, and would want nothing better in the way of an advertisement than to state that we were using glucose in place of honey in making bee-candy. Let us gently lay it on the table.

Center Junction, Iowa.

[This is right. It is well known that glucose is neither acceptable nor healthy for the bees. For wintering, or for spring feeding, if no good honey is to be had, the best sugar is none too good. For mailing queens, glucose would be deadly.—EDITOR.]

Save Your Beeswax

BY G. M. DOOLITTLE.

WHILE the production of honey is made the special object in keeping bees, especially in northern latitudes, yet in every apiary enough wax may be obtained to total a handsome figure in four or five years with but little more effort than to allow it to waste. Notwithstanding this, many who are keeping bees allow this wax to be lost, or, worse still, become a breeder of the pests that torment the apiarist who is trying to keep his apiary free from the wax-moth.

Bur and brace combs are a nuisance when frames are handled and the sections put on and taken off. Every one who is "booked" for a successful bee-keeper will remove these wherever seen in any manipulation of the hives, and especially when preparing supers and hives, for the next year, which were used the season previous. As these are trimmed from frames, honey-boards, etc., they should be carefully preserved, as well as broken bits of comb, and all drone-comb which is cut out to prohibit the useless rearing of drones from scrub or grade mothers.

Then, bees perish often during the winter, or there may be combs which from crookedness, or because they are made up largely of drone-cells, or contain much pollen, or damaged by mice, are unfit for use again. In all such cases, the wax the comb contains should be secured by rendering.

Convenient places should be at hand for the storage of all these pieces of comb and wax, both in the apiary and honey-house, so that there will be no necessity to drop or scatter them about. I have a little box in the seat carried with me, when working in the apiary, so that it is just as easy to drop all bits of wax and comb in this as to drop them on the ground. In this way I preserve any wax which may be trimmed from frames, combs or honey-boards. Such pieces are especially valuable, for they are composed almost entirely of wax, and the rendering of them is easy. It is well to keep these and all other comb to be rendered, away from moisture and light until the operation can conveniently be attended to. The rendering of bits of brace and bur comb, and other comb in which no brood has been reared, is a comparatively simple matter, since they contain nothing to prevent the wax readily separating from the residue, but with combs full of cocoons, bee-bread and other foreign matter, the case is different.

For comb which contains little foreign matter, the solar wax-extractor is a great convenience, as it takes all unpleasantness out of the house, shop or honey-house; is handy to drop all bits of wax and comb into, and if a cloth strainer is put over the place of the discharging wax, it comes forth ready for market. For the rendering of combs containing cocoons, pollen, etc. (and those without cocoons need not be excluded), I have found nothing (after having tried everything readily at hand for the average bee-keeper) better than the following:

Take a common cast-iron kettle, such as is used by nearly all farmers for heating water, boiling vegetables, etc., for the hogs or hens, one that will hold several pails of water; set the same on three stones, or three pieces of gas pipe or bars of iron driven in the ground, so as to raise the lowest part of the rounding bottom of the kettle 3 to 6 inches from the ground. Now fit two or more pieces of plank or board (nailed so the grain of the timber in them runs crosswise of each other) so that a rounding surface is made to fit the inside rounding bottom of the kettle. With a coach or lag screw, these fitted planks are screwed to the end of an "upright" made from a pole 5 or 6 feet long, or from a 2x4 scantling, the upper part of which has holes bored in it 4 or 5 inches apart. Get a pole or scantling 16 feet long, and mortice a hole through it 3 or 4 feet from the larger end (if it be a pole), so that it will admit the upper end of the "upright." Next bore a hole through the pole at mortice, so that a bolt of iron will go through it and any one of the holes in the upright, when the same is inserted in the mortice. Drive an iron stake into the ground 3 or 4 feet away from the center of the kettle as it stands on the stones or iron stakes, to the top of which is attached a trace chain, which chain is to be attached to the large end of the pole when we are ready for it.

Fill the kettle half or two-thirds full of water and build a fire under it, and while waiting for the water to boil get a burlap sack which will hold 3 or 4 bushels, into which place the old combs, and tie the mouth of the sack securely. Some think that if these old combs have been soaked in water 24 hours they will render better, while others hold that such combs should be pounded up fine; but after repeated trials I am led to believe this to be a loss of labor.

When the water in the kettle boils, slowly lower the sack of combs into it, and as soon as melted, "work" the sack one way and the other with an old hoe, and watch the wax rise. If all the comb is not in the sack, raise the upper end, untie, and fill until all has gone into the sack. Working in this way, the whole mass of combs will be reduced to a bushel or so of refuse, when the sack is to be tied down as closely as possible.

Now put the plank end of the "upright" on the sack, the upper end in the mortice in the pole, the iron pin in the right place or hole, and the chain attached to the anchor iron over the big end of the pole, when by bearing down on the small end you can press the last particle of wax out of that mass in the burlap sack, as you "rock" the upright this way and that by carrying the small end of the pole one way and the other, thus bringing the upright to bear, under the great pressure, on every particle the sack contains.

Having all the wax out, hang a weight on the small end of the pole, let the fire go out, and the next morning take the cake of wax from the whole top of the kettle. Its thickness will be in proportion to the amount of comb you had to render.

To prepare the wax for market, try this: For every 10 pounds of wax, put in a suitable sized vessel, allow two quarts of water and one pint of good vinegar, and when the whole is melted over a fire, strain through common cotton cloth into the vessel you wish to cake it in, keeping the latter vessel where it will remain warm enough to keep the wax liquid for four or five hours. Just watch it a moment, and you will see that the whole mass is moving or working and stirring about, which it will keep doing to a lesser and lesser extent as it grows colder. In this way all particles of dirt which the strainer did not remove will be found on the bottom of the hardened cake, from which it can be scraped with a dull knife.

If you wish something fancy, have several tin molds made which will each hold a 2-pound "brick," and when you have it all in this way, you can pack it in a square box, each cake wrapped in a sheet of butter paper, the same as they do "prints" of butter when you can get a fancy or "gilt edged" price

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for it. If you try this way of saving, rendering, and putting up wax for market, you will never allow more to go to waste, and may find enjoyment in the work, far beyond that of sitting down in the "country store" talking "idle gossip."

Borodino, N. Y.

European Foul Brood

BY DR. C. C. MILLER.

A CORRESPONDENT desires the latest wrinkle in the treatment of European foul brood. The styles for 1913 will be much the same as for the past year. There are, however, new members of the Bee Journal family who need information on the subject, and, alas! some of the old members may find their premises invaded for the first time this year by the dreaded visitor. So it may be well to discuss the subject in a sort of general way.

First and foremost, have only strong colonies. A strong colony may resist an attack where a weak one succumbs. So if the disease is in your vicinity, or within a few miles, and you dread its invasion, *keep* all colonies strong. Anyway, *this is a paying thing to do if there were no disease within a thousand miles.* After the disease has made its appearance, you are sure to have weak colonies. After being attacked by European foul brood, it is only a question of time when the strongest colony will be weak. Little use to attempt any treatment until the colony is made strong, either by the uniting of two or more affected colonies, or by the giving of sealed brood or bees from healthy colonies.

Second, if your bees are not of the best Italian stock, introduce that kind. It is now quite generally agreed among foul-brood inspectors that the worst ravages of the disease occur where black blood predominates, and that a strong factor in either prevention or cure is the introduction of Italian blood. Some, however, agree with J. E. Crane, who gives it as his opinion, Gleanings in Bee Culture, page 85, "that the ability of bees to resist disease depends more upon their strength and vigor of constitution than the color of their abdominal rings." Even so, it still remains true that in the great majority of cases there will be an increase of strength and vigor of constitution where black or hybrid blood is succeeded by best Italian blood. Indeed, Mr. Crane immediately adds to the words already quoted, "On the whole it now looks as though the introduction of vigorous strains of Italian bees might, in skillful hands, prove a short cut in curing European foul brood."

Suppose, however, no matter what the quality or condition of your bees, that the appearance of the brood is such as to make you suspicious. The first thing to do is to send a sample of the suspected brood, perhaps a comb 4 inches square, to Dr. E. F. Phillips, Agricultural Department, Washington, D. C. If you write him in advance, he

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will send you a tin box in which to mail the sample, and it will cost you nothing for this, nor for what he does for you afterward. After analysis he will give you expert opinion as to what is the matter, if anything, and probably add instructions on what to do.

SHALL THE COMBS BE SAVED?

Turning now especially to my correspondent, I suspect the question you want answered is whether it is advisable to use the same treatment for European as for American foul brood, destroying all combs, or whether it is better to use the Alexander treatment, or some modification of it, without destroying any combs. Good authorities have been very emphatic that the former is the only course advisable, considering the danger that ignorant or careless bee-keepers might by the latter course spread the disease rather than stamp it out. I have no quarrel with any one who thinks this the safer plan. It certainly is *safer*, at least in the hands of the careless. And it would be safer still not only to burn up all brood and combs, but to burn as well all the bees, hives—everything.

Indeed the time was, when that was the only treatment considered advisable for American foul brood, to burn up the whole thing, lock, stock, and barrel. Yet nowadays no one advises to destroy, in all cases, hives and bees; although it might be advisable if only a colony or two in the neighborhood were affected. But such localities are getting to be more and more scarce all the time, and the effort is made more and more to control the disease rather than to stamp it out entirely. So if it be the right thing to save the hives and bees, why not save the combs also if we can?

When the combs are destroyed, it is not the mere waste of so much valuable material. The heavy set-back to the colony from having to build up anew is a matter of greater consideration. Destroy the combs and you can count on little from the colony for that season; whereas if the combs be left, you may have a fair surplus.

ALEXANDER TREATMENT.

If you decide to save the combs, you may adopt the Alexander plan of treatment. *Make the colony strong.* Kill the queen. In 10 days kill all queen-cells. In 10 days more give a ripe queen-cell of best Italian stock, or a virgin just hatched of the same stock. When brood from the new queen appears, it will be healthy. This makes a break in brood-rearing of about a month's duration.

MODIFIED ALEXANDER TREATMENT.

Good results have been obtained without so long a break in brood-rearing. Instead of a queen-cell or a virgin just hatched, a laying young queen may be given about 20 days after the removal of the old queen. Another plan, greatly shortening the period of queenlessness, has proved well worth trying. At the time of removing the old queen, or as soon thereafter as the bees will accept it, let a queen-cell or a virgin just hatched be given. This ought to make a break in brood-rearing of not more than 10 days. Besides the shorter time of queenlessness, there is the advantage in this case that the bees do not have the discouragement of being hopelessly queenless, and there is reason to believe that this discouragement is no help to the colony in cleaning up the disease.

CAGING THE QUEEN.

The instruction has been to kill the old queen. Instead of being killed she might be used elsewhere, but for the fact that generally a queen does not do good work after she has been for some time in a colony badly affected with European foul brood. In a very mild case, however, the queen is likely to be still as good as ever, and as the only object in removing the queen (unless she be replaced by a better one) is to stop the rearing of brood, there is no need to remove her at all. Simply cage her in the hive for a week or 10 days, and then release her. Even if a certain percent of cases thus treated should be failures, the simplicity of doing nothing more than to cage the queen for a few days may be preferred to a surer plan involving several times as much trouble.

RECURRENCE OF DISEASE.

The question has been asked, "How long does it take to get rid of the disease entirely?" Perhaps no one can answer that question with any degree of positiveness. It has been said that European foul brood is more persistent, more difficult to eradicate entirely than the American variety. Speaking of foul brood and probably referring to American, E. D. Townsend says in the Bee-Keepers' Review, page 45: "Once in a locality, always in that locality. One can free a hive of the disease, very probably a yard, but not a locality of any considerable area." If that be true of American, it is more emphatically true of European. No matter whether the combs are all destroyed in the treatment of the disease, it is likely to appear again. Yet with proper watchfulness there need never be any bad case, and good crops of honey may be obtained in spite of it. In the apiary of the writer a single diseased cell is considered warrant for treatment, so there can never be any very bad case.

It should be mentioned, however, that a very little of the disease is bad in its effects, for a colony very lightly affected seems to fall behind another entirely healthy colony to a larger extent than one would suppose possible from so small an amount of the disease.

Marengo, Ill.

Color of Queens

BY C. P. DADANT.

DR. KRAMER holds that the color of queens is lighter when they are reared from a young mother; that the queen gets darker in color as she grows older, and that her progeny is therefore also darker.

He holds that the soil of a country has an influence upon the amount of mineral contained in the honey, and that it thereby influences the color of the bees. A soil rich in potash will produce lighter colored bees (according to one of his commentators, E. Van Hay). What do our queen-breeders have to say about this? Some of them who have reared queens largely both in the North and the South ought to have an opinion based upon experience.

Is it a fact that a queen reared in a very dark cell will be in general darker than one reared in a lighter colored cell? Or is this because the light-colored cells are built at the time of the greatest crop and in a favorable season?

The above enquiry was put in type and a proof-sheet sent to a number of queen-breeders with a request to give

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their opinion and their experience. The following have replied kindly to our request, for which we express our thanks: J. A. Simmons, J. P. Moore, Grant Anderson, W. J. Littlefield, A. B. Marchant, Frank F. France, Quirin-the Queen-breeder, J. M. Davis, T. S. Hall, and J. J. Wilder. It would take too much room to give all the replies in full, so we will summarize them and quote only extracts.

All agree that a queen gets darker as she grows older, but not one thinks that the daughters of a young queen will be lighter colored than those of an old queen.

J. A. Simmons says: "The inexperienced will often be surprised at having produced both light and dark queens from eggs from a evenly-marked queen.

"A queen is darker as she grows older, I am free to admit. But I have had such a liking for some good breeders that I continued to use them as such, after they had become so poor as to egg laying that they required brood from other colonies to maintain their colonies' normal condition, but the last queens reared from them were just as prolific and as light as the ones first reared."

Frank F. France says: "I have noticed that a queen just hatched from a cell that has been chilled has a darker tip to the abdomen."

Likewise Quirin writes: "A light or dark cell, light or dark honey, light or dark pollen have influence towards producing either lighter or darker queens, yet said influence is so extremely light as not to be noticed for several generations. Temperature has a far greater bearing on the color proposition than either food or color of the comb. Queens hatched in a low temperature may be good sized, etc., but will be darker than if hatched at a higher degree."

As to the effect of the soil upon the color of the bees and of the honey, France thinks it may affect the honey but not the color of the bees. Marchant says: "I believe that queens reared in the North are brighter than those reared in the South, and possibly it is the soil that causes this, as the lands in the North have more potash than those of the South."

W. J. Littlefield says: "The soil may or may not influence the color of the honey, but I am sure the honey has nothing to do with the color of the queens; if it did, in early spring when we feed back to the bees the dark honey that is not fit to put on the market, we would get very dark queens; then when we feed white sugar syrup we would get much lighter-colored queens. The color of the honey, however, has quite a little to do with the color of the wax, the darker the honey the darker the wax will be." (This last proposition, which is out of the present subject, deserves a special discussion.)

Grant Anderson has "kept bees on many kinds of soils, and has never noticed any change in the color of the bees."

J. A. Simmons says: "As my queen-rearing experience has been confined to soils of a like nature, I cannot deny Dr. Kramer's statement. This is more chemistry than I have applied to queen-rearing. But would not this difference, if correct, also affect the color of persons eating this honey? Ladies, be careful or you may change your color, or be sure to get the kind of honey that will produce the desired effect. Queens alike in color and size may be produced from either light or dark cells under favorable conditions. It will be noticed that, very early or late in the season, when there is but little honey coming in, colonies made queenless and compelled to rear queens produce smaller and darker queens, in cells started from dark cell-cups about the combs, as if they were made from bits of wax gathered from the combs already built, and not of their own secretion. Therefore, it is my opinion that the season, rather than the color of the cells, makes the difference in the color of queens."

T. S. Hall says in part: "There is a marked difference in the color of some queens, when the cells are allowed to get chilled or the temperature goes below the normal. This we know, for we have left cells out all night and put them the next morning where the bees could impart the necessary heat, for the hatching of the queen. The different colors of pollen also show in the golden bees and queens. Pollen gathered from sumac gives the light bees and queens a golden rich color."

J. J. Wilder says: "I am inclined to take side with Dr. Kramer as to the color of queens and their progeny being affected by the soil, or even by the atmospheric condition of a country. I believe this will explain also why a queen and her progeny gradually darken in color as they grow older. This only applies to our rich colored Italian stock which is bred up for color. My opinion is based on experience from the high mountainous section of Georgia to the low sea level section of Florida. I have always noticed that a bright colored Italian queen and her progeny gradually darken in color, but never thought of bringing the matter up for discussion.

"The color of our Italian stock is far more easily maintained on the high and dry ridgy sections of Florida and the mountainous sections of our country. This land is rich in potash. Our principal honey plant in the high section is the partridge pea, and it grows prolific and yields nectar only on land rich in potash. On the other hand, on the low, level land of middle Georgia, where my bee-business is located, and the soil is rich in lime, we cannot maintain the color of the Italian stock. In fact, it is astonishing how fast the color darkens. The same conditions prevail along the low, flat, sea level land of Florida, where the atmosphere is very heavy and salty. There the yellow bands of the Italians are so dull in color that they can hardly be detected.

"My apiaries on the high land of Florida are stocked with very beautiful colored Italians. I found this stock there, and it has reproduced itself up to the present. Very often a queen and her progeny come out away ahead of the others in color. My apiarist calls them our $20 queens, and points them out to me as we go over the apiaries. When I return a few months later, and ask about these extra-fine colored queens and bees, the apiarist remarks that they have fallen off some in color. But they never change to dark-colored Italians. They are always bright, and only lose a little of their extra brightness.

"In conclusion, let me say that this is a very important question, and if solved will prove a great help to our industry."

We insert Wilder's letter in full because it brings out a point worth considering. The bees of a bright $20-queen darken in color at different times. Is not the honey contained in their honey-sac at the time responsible in part for this? Years ago both A. I. Root and the elder Dadant called attention to the fact that the yellow bands of the Italian bees are more or less transparent, and that the color of the honey harvested by them influences their appearance without changing their color.

The sum of the replies indicates that queens are possibly darker when reared in unfavorable seasons. That is probably why darker cells have been thought to produce darker queens.

As to the unanimous agreement that queens get darker as they grow older, is it not possible that this darker appearance is due to the loss of the downy hairs of youth and not to an actual change of color? Very old queens are always hairless and shiny, looking therefore much darker than the young ones.

We believe this question is worth discussing on account of the all but unanimous desire to secure bright queens as well as prolific ones.

LATER.—Here is an additional contribution to the same subject which gives new ideas. Mr. Frohliger uses some very plain, common-sense talk. We already know that honey from different localities is of different colors, sometimes coming from the same kind of plant.

"The color question has always been one that bee-keepers would, as it were, go mad about. Personally, I have never been a stickler for color, and have had some of the goldens that were really a picture to look at and admire; but, oh! how they could use their sting; with more than a vengeance, too, and I was very glad to get rid of them without any extra charge.

"I firmly believe that climate, soil, location and surroundings have a wonderful effect upon the color, disposition, and general contour of our bees as well as upon the human family and

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domestic animals in general. 'Tell me your company and I'll tell you who you are and what you are.'

"The bees around San Francisco Bay, subject to the ocean winds, fogs, cold, etc., are more sluggish than they are near the central parts of the State, and away from these natural elements. Yes, I believe they have a tendency to get darker, too. Does not the sunshine have an effect upon those who are out in it all of the time, and will it not improve the color of an individual if he is always out in the sunshine and fresh air compared to one that is housed up all the time, and does not the skin and general complexion change accordingly? Why should not the soil, food and water have their effect upon the bees and their products?

"Why is it that the honey from the alfalfa raised in the valley is darker than that on the higher altitudes? Tell me why fruit that is produced in the valleys has a different color and flavor from that which is produced in the mountainous regions. If you do not know this, come out and visit some of the specialty shows, or ask some fruit-grower in the mountains and he will tell you with a great deal of pride, as well as satisfaction, and prove it, too, that the mountain fruit is the best in color, flavor, and general size.

"Here in California we have soils that are only adapted to almonds, walnuts and certain kinds of berries, but will not raise grapes and other fruits. Is it the soil only? I would say not, as climate and rain and other natural causes have their wonderful effects, and if you want to be a successful rancher, study the conditions of the soil, your climate, and then plant what is best. So it is with the bees, put them where they can get a crop at short range, and do not expect them to go 2 to 5 miles and do as well as those who must only go a stone's throw.

"Give me a strain of gentle bees with a good deal of *energy* and long tongues, and I will not look for color, but see how much honey they will gather and how well they will provide and guard their home. Take care of them and they will pay you back for every courtesy extended to them."

DR. MILLER'S ANSWERS

Send Questions either to the office of the American Bee Journal or direct to DR. C. C. MILLER, MARENGO, ILL. He does NOT answer bee-keeping questions by mail.

Overstocking—Honey-Boards, Etc.—Dividing

1. I have only had my bees about three years. The man I bought them from said he was selling off his bees and was going to Old Mexico, as that was a great bee-country. So I bought about one-half of his bees, and he went away and was gone about two years. Then he came back and began to increase his bees again. I have four apiaries now. One was doing fairly well, so he has just put in a big apiary about one-half mile from mine. We figure on 50 pounds per colony here. Now, what would you eastern beemen think of being treated this way? It does not look to me like he or I will get very much honey by having the bees so close together. The locations for bees are about all taken up here, I think. There are some new locations about 18 miles from here. This over-crowding does not look very encouraging to me. What do you think of it?

2. How is a honey-board made? Is it just a board with a bee-escape on the underside? Would it pay to use these for extracting honey; put them on in the afternoon before you expect to extract, and then just take off the supers and frames together, and wheel them into the extracting house?

3. Do milo maize or sorghum yield honey or pollen? They are raising a large amount of milo maize here.

4. Does any one know of something that could be sown in waste places where irrigating water runs, or where Bermuda grass now grows that would produce honey and also be good for the farmer? There are several places here where Bermuda grass grows, when it gets the waste water from the ranches.

5. Will bees draw out foundation as soon when it has been in the frame three months as they would if only in the frame three weeks? I like to put my foundation in the frame in the winter time, when I have plenty of time. This to be new foundation just made.

6. When is the best time to make new swarms? I worked with a bee-man one summer before I bought my bees. He made his new swarms when he was extracting. But I think it disturbs the bees so much when they are working hard, and it looks to me like they will not store as much honey if torn apart at this time. ARIZONA.

ANSWERS.—1. My thought about it is that this sort of thing makes bee-keeping a very uncertain thing to count on. Years ago I took the ground that if ever it was to be a reliable business, a man should have just as much right to his territory as the man who keeps cattle or other live stock. So far as I now remember not a single man expressed any agreement with me, although since then a good many have. There is quite a general agreement that a man has a prior right morally, although some do not even believe in that. But in matters of business, moral rights are not very reliable. I have a moral right to the possession of my horses, but if I had no legal right to them I doubt if I would keep them long. Some day bee-keepers may be advanced enough so that a man may be just as safe from interference in his bee-pasture as he now is in his cow-pasture. At present you have no redress, and must just grin and bear it—or else bear it without grinning.

2. Honey-boards were in use long before bee-escapes were ever heard of. A honey-board was one placed over the top-bars, with a bee-space between, there being in the board, holes or slots over which were placed surplus boxes. Latterly a board with an escape in it is sometimes called a honey-board, but it is better simply to call it a bee-escape. Opinions are divided as to using bee-escapes in the way you mention, some highly approving them and others not believing them worth while. I suspect that bee-escapes work better for some than for others, either because of the difference in bees or for some other reason.

3. I don't know. I should guess they would be good yielders of pollen at least.

4. I think sweet clover has been very successful in such places.

5. Speaking very strictly, I suppose the fresher the foundation is the better. But I have used foundation that had been fastened in four or five years, and I've some question whether the bees made any great difference between that and that which had been put in only four or five days. At any rate, I believe it good policy to get it ready in advance as you propose.

6. There is no fixed rule about it. One would think it best to follow Nature, and make increase at the time bees swarm naturally. But nearly every one agrees nowadays that natural swarming is decidedly detrimental to the honey crop. In my locality it seems much better to have no increase until at or near the close of the harvest. In some localities, where there is a heavy late flow, it may be better to divide early in the season.

Questions on Requeening, Increase, Etc.

1. I am running for extracted and comb honey. Before swarming seasons I place the queen and one frame of brood, and the balance drawn out combs, in an 8-frame hive; over this an excluder with the rest of the brood in the upper story. In 9 or 12 days I cut out all the queen-cells, if there are any. Why not put the empty hive with the drawn combs on top without an excluder? Would that work just as well or would it cause more swarming?

2. Which is the simplest way, rear queens in nuclei, or requeen the selected colony by inserting a frame with queen-cells?

3. Is there any proof that bees sleep to a certain extent during a honey-flow?

4. As a rule, every bee-keeper has some weaklings in his yard. I don't care how much attention he gives them. To strengthen them what is your plan, to swap frames or go to strong colonies, give them a good shaking and leave them with the queen and one frame of brood in the hive on the old stand, and put the rest of the brood under the weak colony? Very likely there would be queen-cells started.

5. To melt up cappings and wax scraps, what would be the simplest way to do?

6. Do you think bees will rear workers, if shaken in a hive with a queen, in a full set of all drone-combs?

7. If given full sheets of foundation will there be any drone cells?

8. I bought 3 colonies of bees in box-hives at a sale for $1.35 each, and they were as heavy as lead. My intention was, a little before swarming season, to drum out the bees with the queen and make 2 colonies out of the parent colony. What would be the best thing to do?

9. In what way is the most honey gained by extracting, in 8 or 10 frame hives? I put on supers over double brood-chambers? MISSOURI.

ANSWERS.—1. No, the excluder is an important part of the stunt. Without the excluder swarming would be hindered to a certain extent, but not as much as with the excluder.

2. It is much simpler to hang in the hive a frame with a queen-cell, or to put in a queen-cell without the frame. Only in that case you will have to wait 10 days to 2 weeks before the young queen begins to lay. You

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also run some risk that the young queen may fail.

3. I think that has been proven; but I can not now cite the proof.

4. Early in the season the former plan; at the approach of swarming the latter.

5. Use a solar wax-extractor.

6. I tried that once, and the bees wouldn't stay; swarmed out. In other cases, where there was an excess of drone-comb, they reared an excess of drones; but in some cases they narrowed the mouths of the drone-cells and reared workers.

7. None to speak of; but the bees are likely to find some little vacancy that they can fill with drone-cells. Practically speaking, however, there will be no drone-comb if frames are entirely filled with worker foundation.

8. You can do as you suggest, or you can wait until the bees swarm, hive the swarm on the old stand, put the old hive close beside the swarm, 8 days later move the old hive to a new stand, and 21 days after swarming, when all worker-brood has hatched out, break up the old hive and give the bees to the swarm.

9. Without any special care I should expect more from the 10 framer, because the colony would likely be stronger. With special management there may be no difference.

Increase Without Swarming

I have two strong colonies of bees; in each hive the brood-chamber is a double 10-frame brood-chamber, making 20 frames to each.

Now, I wish to know what is the best way to make "increase" of my bees? I would like to avoid the troubles of the usual swarming, and yet increase my stock.

ILLINOIS.

ANSWER.—Here is one good way: Operate a little before the usual time of swarming in your neighborhood; or, if you wish to take a little more pains, operate after queen-cells are started but before they are sealed, for with the first sealing a swarm is likely to issue. Set one of the stories on a new stand putting in it all the frames of brood with adhering bees, and leave the rest of the combs and bees with the old queen on the old stand. The hive on the old stand ought to give a good surplus in a good year, and if you want to make more sure of it you can brush back into this hive the bees from half the combs of the other hive. There is, however, some danger of a swarm as soon as the first young queen emerges. You can prevent this by destroying all queen-cells but one. Or, you may prevent it by dividing the brood into two parts, providing you want the increase.

It may be still better first to put all the brood in the upper story, with an excluder between the two stories and the queen in the lower story. Then, a week later, move the upper story to a new stand. In this case there ought to be no danger of swarming.

Improving Stock

1. I would like to know of some simple way to improve my bees, without taking too much time from my other bee-work. I produce both comb and extracted honey, but mostly extracted. I am surrounded by box-hive bee-keepers; no chance to get very far away from all of them. My bees are nicely marked Italians, but I do not know how they will compare with the best strains in the country. They were brought here years ago, and natural swarming has scattered them all over the country. There has been no new blood introduced since the start.

2. Will you tell me some simple way in which I can keep a record of my bees—I mean a record of queens, etc., to see if there is any improvement in them?

3. Where could I get Alley's book on queen-rearing? MONTANA.

ANSWERS.—1. The matter is quite simple. Keep track of what your bees accomplish, especially those that are better than the average, and then breed from the best. If you continue this year after year you will not fail of results, even if inferior bees are all around you. It is possible, however, that even the best of your bees are not very good, and in that case it will pay well to send off to some reliable breeder for a better queen.

2. I use a cheap blank book, giving to each colony its place, and enter there the important items, especially the amount of honey each colony yields. That matter I keep in a spot on the page by itself, so that at any time I can glance at it and tell just what the colony has done. This credit may be made in the apiary at the time the honey is taken off. For instance, this credit may appear: 24, 24, 24, 15. That means I took away 21 sections each time at three different times, and the equivalent of 15 sections at the last time, making 87 sections in all.

3. It is out of print, but you will find the Alley queen-rearing method in "The Hive and Honey Bee," latest edition.

Removing Winter Protection in Spring—Keeping Queens Among the Bees

1. I have aways hesitated to remove the winter protection (chaff tray, etc.) in the early spring in order to examine colonies. As you advocate to take the bees out when hard (sweet) maple is in bloom, would this also be a good signal to go by for removing the winter packing, or, if not, what would be?

2. I have always been puzzled how to keep a lot of queens when not having immediate use for them. You state on page 111 about the maximum length of time one could keep queens in cages without danger to their laying powers. I suppose while so caged they do not lay any eggs. Even the interruption in laying while queens are in the mails is said to be harmful.

3. Suppose one has 3-frame nuclei, could the seven best frames of a colony be added to the nuclei without danger to the nuclei and queens? PENNSYLVANIA.

ANSWERS.—1. If you will look again you will see that it is the soft maple, not the hard, that usually gives the signal for taking bees out of a cellar. The hard maple blooms a little later. Taking bees out of a cellar is a different affair from taking away the wrappings of those that have been wintered outside. My bees have no wrapping after being brought out, but some think it pays to give them protection after that time. At any rate, if my bees were outdoors and well packed, I would hesitate about unpacking them at the time of maple bloom unless I thought there was danger of their being short of stores, and even then it might be worth while to return the packing until about the time of fruit bloom.

2. In the case you speak of, the queens were kept in small cages in a small colony. This was in the spring when there was no heavy laying yet, and I doubt if the queens were at all injured by being kept from laying. My guess would be that a queen, or a number of queens, might be thus kept safely for a month, perhaps two months, in a queenless colony, or a queen-right colony if the bees would feed her. Indeed, she might be kept in a candied cage if the bees did not feed her, only in that case bees having a queen of their own might be hostile to her, and this nervous irritation might be bad for a queen. I am not sure that it has ever been claimed that the cessation from laying was an injury to queens sent through the mails. It doesn't hurt a queen to remain all winter without laying. Nor is it likely she is injured by ceasing to lay in a dearth long continued. She may be injured by being jarred and frightened in the mails, by *sudden* cessation from laying, and especially by being flung about when heavy with eggs.

3. Yes, if the bees had been queenless long enough to be thoroughly aware of their queenlessness, say two days. It would be still safer if the bees were taken from different colonies.

Brood Combs

What do you do with the brood comb after it is a few years old? Do you take it out or leave it in for a life time? TEXAS.

ANSWER.—I have never taken away a comb from the bees merely on account of its age, no matter how old. So long as a straight worker comb remains in good condition I would rather have it than a new comb. One reason for that is that the bees themselves perfer the old comb. Give them an old black comb side by side with a new comb or a frame filled with comb foundation, and they will always choose the old comb first, either for brood or honey. At least that is the way my bees have done.

Many others, however, think it well to have the combs renewed every few years, some even going so far as to renew them every 2 years. Especially do they urge this in regions where foul brood prevails. The time preferred for this renewal is in the spring or early summer, the combs taken away being melted.

Cement Hives—Swarms—Preventing Them—Winter Entrance and Packing

1. I intend to make chaff hives with outside walls of cement ¾ inch thick, and inside walls of lumber ⅛ inch thick. The dead air space is to be filled with dry sawdust. Do you think this hive, with a cement bottom and lumber roof, will answer for summer and winter?

2. If I kill the queen to a swarm which has settled on a tree, will the swarm return to the parent hive?

3. Last summer a swarm returned to a hive before I could get it. I had planned to establish a new colony with this swarm, but it went back into the parent hive. I suspected the queen was too young. What was the reason the swarm returned?

4. To prevent swarming, I will shove the pile of supers back so as to make an opening of ½ inch for ventilation along the front. Will this prevent swarming and affect the storing of honey?

5. Which is the better, thin boards or burlap placed over the brood-chamber for wintering? Straw or leaves are to be placed above.

6. Should the thin boards be made tight or have a hole cut in the center?

7. Should the entrance be 1x5 inches, with a wire-cloth in it to prevent mice entering? INDIANA.

ANSWERS.—1. I don't know, but from what little I have read I am afraid you will not like it. Better try it on a small scale, and

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please report how it turns out. Sawdust between walls is not liked so well nowadays as something looser, as planer shavings or crumpled newspapers,

2. As my queens are all clipped, I have had many swarms come out, and after the queen dropped on the ground the swarm would return to the hive after sailing about in the air for a few minutes. Sometimes they settle on trees, returning to the hive after hanging there for a time. Occasionally they will return to the wrong hive if a swarm has issued from it a little while before and the bees are making a call at the entrance.

3. I don't know.

4. Ventilating in that way is a help against swarming, although, of course, it will not prevent it. I have practiced it much, and never knew any harm to come from it in the way of chilling bees. The only harm is that sections next to the opening are delayed in being finished, but not always. Instead of shoving the lower section-super back, I shove it forward. I have used the plan with extracting-supers, and "stuttered" them; that is, I shoved the lower super forward, the next back, the next forward, and so on.

5. I have had no experience, but some claim one way is better and some the other.

6. Some have a hole in the center and some do not, but in either case there must be packing, the same as when gunny-sacking is used.

7. Wire-cloth with three meshes to the inch is a good thing at the entrance for winter, but not when bees are flying daily.

Introducing Queens

What success do you have introducing queens? We lose a great many by the candy route. This country is so dry they don't seem to eat her out. We always have to help her out, and she is often badly dealt with. Can you tell *me* some surer way of introducing? NEW MEXICO.

ANSWER.—If you help a queen out, the excitement of opening the hive is likely to stir up the bees so that the queen is in more danger than when she quietly comes out of her own accord, when the bees eat out the candy. Instead of helping her out, you might wet the candy with water and return the cage, wetting it more than once if necessary, but leaving the bees to free the queen.

Yes, I can give you a way of introducing that is entirely sure, although it is some trouble, and I have never used it except with a queen of extra value. Put any number of frames of brood in an upper story over an excluder, where the queen can not lay in them. When all the brood is sealed, replace the excluder with a sheet of wire-cloth, put an empty story over it, into which you will put the frames of brood after you have brushed off *every single bee*. Put your queen upon the combs, close the upper story bee-tight, and in five days set it on a new stand, giving an entrance for a single bee to pass, enlarging the entrance a few days later. The queen, of course, is perfectly safe, as these young bees know no other mother.

Another way nearly as safe, but easier, is based on the fact that it is the older bees that kick up a rumpus with a new queen. Take from the hive one or two frames of brood and put them in a new hive. Set this new hive in place of the old hive, put on it supers if there are any, and cover over. It makes little difference whether you fill up the vacancies in the two hives. Now set the old hive on top of all, and put your caged queen in it. Of course, you have removed the old queen entirely. After the queen has been out of the cage two days or more, return the old hive to its place, giving back the brood-combs that were removed. The old bees, as they return from the field, will accept the situation kindly, having been queenless since the change. With this plan you ought not to have one failure in a hundred.

Wintering Bees on a Porch in China

I am wintering my bees in a porch at the back of my house. I covered the open sides of the porch with paper. It is about 12x6 feet. It has a big window, and a door also made of paper. I put the hives near the window and door, surrounded them singly with boxes 4 feet square, having no bottoms or tops. They are made of reed matting, and chaffed with rice husks from the bottom up to 7 or 8 inches above the hives. On top of the hives I put the supers with a piece of burlap nailed on the bottom of each. I put a board in the middle of each super, in which I cut an opening 4 inches square, and it is covered with a piece of glass through which I can feed and inspect the bees without disturbing them. Then I placed a thermometer on top of the frames just under the glass opening, and I find the temperature averages about 40 degrees Fahr., while the temperature in the paper-covered porch is about 20 degrees Fahr. The outside temperature near the porch is about 1 or 2 degrees lower. I found no dampness in the hives, and the bees are active and moving about in the hives whenever I examine them through the glass opening.

1. Does the queen, in this condition, still lay eggs and the colony rear brood?

2. Do you think my way of wintering satisfactory?

3. Would a thermometer put on top of the frames serve the purpose of approximately ascertaining the temperature in the hives? If yes, what average temperature should it show during winter, spring, summer and autumn for a normal colony?

4. In wintering, is it better to leave the bees in the cold (but not to the drafts of cold wind) so that they may not be able to move or fly rather than to artificially warm up the hive in order that the bees may not mistake the artificial warmth for spring. By flying out they would certainly die.

CHINA.

ANSWERS.—1. The likelihood is you will find the queens stop laying in the fall and then begin again perhaps toward the last of February, or in some cases possibly in January, although this is guessing, and my dates may be much out of the way, as I don't know the climate in your part of China. At any rate, I feel pretty sure your queens stop laying altogether for a time, even if the bees do not seem entirely dormant.

2. I would guess that a little higher temperature would do no harm, and yet my opinion is not worth as much as the opinion of the bees, and if they winter satisfactorily nothing more should be asked.

3. I suppose you mean the temperature in the cluster of bees, and a thermometer on top of the frames would not tell very much about this. In the human body the temperature remains nearly the same whatever the temperature of the surrounding air. It is a good deal the same with the bees. Indeed, when there is a fall in the thermometer placed over the frames, you might find the temperature rising in the cluster, paradoxical as it seems, just as the colder the day the hotter the fire in our dwellings. For the bees have the ability to raise the temperature in the cluster by increased consumption and activity.

4. Yes, nothing should be done to induce the bees to fly when they would get chilled. Indeed, it is sometimes a good thing to shade the entrance lest the sun shining in may induce them to fly when the air is too cold. While the hives should be protected, there is such a thing as keeping them too warm.

Renting Bees on Halves—Cellar Ventilation

1. I let my bees on halves last summer. Should the man who took the bees have left enough stores for winter? Four of my colonies starved to death before I could attend to them, and 10 more would have starved within a week if I hadn't fed them. This man told me they had plenty of stores for the winter. I let him have 28 colonies on June 5. Wasn't he supposed to return to me 28 colonies in the fall? He returned only 28 colonies with half of the increase, and the increase was 8 swarms. Now, wasn't this man supposed to leave my bees in good shape ready to put into the cellar?

Now, Doctor, is there any law on renting bees on halves?

2. I winter my bees in the cellar, and the thermometer registers from 40 to 42 degrees. It is a stone cellar with a cement floor, and the ceiling has a double floor filled in between with sawdust. It is 10x14 feet inside, and 6 feet high. I have a 2 foot square hole in the center of the ceiling for ventilation. I throw a quilt over this box, but still the cellar seems to be damp. Can you tell me the cause? The bees are quiet. I find big drops of water under the cover over the bees when I feed them. NEW YORK.

ANSWERS.—1.—If there is any law about the matter it must be a State law. But I very much doubt that there is any law about it in your State or any other State. The great probability is that the law would insist on the carrying out of any contract made in the premises. So the whole thing depends upon the agreement that was made, and to make sure about it the agreement should have been in writing. If there was an agreement that you should receive back a certain number of colonies at a specified time, then that agreement should be carried out, even if the man to whom the bees were let should have to buy bees to make out the number. As to disposal of the increase, a common custom is to divide it equally, but that custom is hardly law. You let the man have 28 colonies, and you say "he left me only 28 with half the increase, and the increase was 8 swarms." If you mean by that that you got back the orignal number, 28, and half of the 8 swarms, or 32 in all, it would seem right. If, however, he left you only 28, *including* half the increase, or only 28 in all, that would seem unusual. As to the condition of the bees in the fall with respect to stores, that depends upon agreement. Unless there was some special agreement to the contrary, you would get the bees back in the fall without any feeding, if the season was so poor that they needed feeding in the fall. But if they had plenty of stores for winter in the brood-chamber, and he should extract some of the honey from the brood-chamber before turning over the bees to you, then I should say he was not trying to play fair.

In a matter of this kind, if there is no written agreement, the fair thing to both parties is the fair thing to do If you have bees and I take care of them, I furnish the time and perhaps the location and you furnish

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the bees. If there is no honey I have lost my time, and you will have to lose your bees unless you furnish me with honey to feed them, in which case I would feel compelled to do the work.

But if there is a crop and I make some money, you are entitled to a part of the profit.

The custom is for the man who furnishes the bees to furnish the material, hives, sections, etc., and the crop and the swarms are divided equally. This is a fair division between labor and capital.

2. Regarding the moisture in your cellar, you have not enough ventilation.

REPORTS AND EXPERIENCES

An Ontario Letter

So far this winter has been mild and favorable for bees in this locality, along the south shore of Lake Ontario. The mercury has been playing between 4 degrees and 40 degrees until Feb. 20, when the thermometer went up to 60 degrees, and the bees on the summer stands have taken a good flight, seeming to be all right. Those in the cellar are doing fine so far, and remain very quiet.

The writer has been a bee-keeper close to 50 years as a side issue, and over 10 years for pleasure, yet still remains as one who has followed the old Swiss saying, "Drink, drink, drink;" in order to accomplish anything in the bee-fraternity worth while.

REV. J. M. WISMER.

Jordan Station, Ont,

Discouraged With California

Prospect for a good honey crop in California is very poor at present. The rainfall so far has been very light, but we may have plenty of rain yet. This has probably been the coldest winter ever experienced in California since it was settled by the American people; but it is too early in the season to tell whether it has had any bad effect on the honey-producing plants, such as the sage and mountain buckwheat.

Last year was very poor, no crop at all, and a great many bees died from paralysis. The honey business in California is too uncertain to be depended upon alone for a living, and should be run in connection with something else. L. G. SMITH.

San Benito, Calif., Feb. 19.

Wintered Well Out-of-doors

I am sending this photograph of my apiary of 100 colonies in their winter quarters. This is March 4, and I have not lost a single colony, and they are in splendid condition in every way. I expect to harvest 25,000 pounds of section honey the coming season.

The apiary is protected on the north by buildings, and on the west by a high fence. This is my eighth year as a bee-keeper. My crop, last year, was 9000 pounds of finished sections, a large portion of which was fancy. BELL E. BERRYMAN.

Central City, Nebr., Feb. 25.

Early Spring in Nebraska

Up-to-date bees have wintered well. Maple came near starting in southern Nebraska over a month ago. My bees were in the cellar from Dec. 1 to Feb. 20. As there was too much moisture in the hives, I set them in clustered groups and protected them from winds. They enjoyed two fairly nice days after being set out. T. HULL.

Tobias, Nebr.

Fears Danger of Spraying

I am in the bee-business in a small way. I wintered 10 colonies on summer stands, and they all seem to be in very good shape from outward appearace, as I have not opened any of the hives yet. Yesterday, Feb. 21, I found the bees bringing in pollen, which is the earliest that I ever knew them to be bringing in pollen in this part of the country. We are having a very warm spell just now. The thermometer registered 72 degrees yesterday, which accounts for the bees being at work so early in the season.

I am fearful that our bees will be short of stores this spring on account of such a warm winter, and unless we have a very favorable spring we will have to do some spring feeding to guard against spring dwindling and loss.

I have always wintered my bees on summer stands, and have not lost any so far, but I always aim to protect them by covering them well and having a windbreak.

I am very much afraid that the reckless manner in which the fruit-men have been spraying will soon put an end to bee-keeping in this part of the country. Bees are worth more to the fruit-men than to the owner of the bees, in the way of pollenizing the fruit. In the spring of 1910 my neighbor had an orchard right by my bees, and when the trees were in bloom it was cold and the bees could not get out very much, and the trees that were closest to the bees were the only ones that had any apples on.

The owner asked me how I accounted for that? My idea was that the bees did not get very far from the hives, and only distributed pollen on the nearest trees, for one part of the orchard had as much bloom as the other did. WELCH BIBBEE.

Cottageville, W. Va., Feb. 22.

BELL E. BERRYMAN'S LONE-TREE APIARY WINTERING WELL.

A Report from Maine

The outlook for the bee-keeper in this great potato country is not very bright at present. The past summer was too wet and cool, and bees went into winter quarters rather light in stores, and not up to the standard in bees.

The winter has been the mildest known in this section for many years up to February, with the lightest snow fall. In consequence, the clover fields are covered with a coat of ice. Since February came the mercury has tried to hide, most of the time in the glass bulb at the bottom of the tube. It is 15 degrees below zero today, with a strong wind blowing.

Bees are wintered in cellars here, but an open winter like this badly injures the clover on which we depend for our surplus honey. If Burbank could be persuaded to make the potato blossom yield a liberal quantity of nectar of good quality, this would be a bee-keepers paradise.

We who have sighed for the sunny skies of southern California feel a little more contented in our northern homes since that terrible freeze. We have heartfelt sympathy for our brother bee-keepers and the citrus fruit-growers of that sunny (frost bitten) clime. May they never see anything like it again. Perhaps there is a lesson hidden in the frost and ruin that may reveal itself for the good of all. Let us hope so.

Caribou, Maine, Feb. 13. O. B. GRIFFIN.

Report from Illinois

I had 22 colonies last spring. My time being taken up with other business, I made arrangements with J. M. Bent, of Milledgeville, to take care of my bees on shares. Mr. Bent also has an apiary of his own.

I now have 58 colonies. All the increase is from the 22 except 2 swarms. We got nearly 3000 pounds of extracted honey and 350 pounds of comb honey this season. The picture only shows the west end of my bee-house. It extends 24 feet east. My bees are all in a healthy condition at present.

Polo, Ill. G. L. SAUER.

Blossoms of Almond Trees

I am sending you some pictures of the almond trees in full bloom. There are hundreds of acres of trees just like those here. The honey from the almond is bitter, but as it comes in February, it is fine for building up colonies. What swarming my bees do is in March, but in 1912 I had 25 colonies and no swarms. They gave me 2800 pounds of honey. R. V. BRYNER.

Oakley, Calif., Feb. 26.

Bees Wintering Finely

Bees are wintering finely so far; however we had one day that was pretty rough on them. It was warm, and the sun was nice and warm, but a cold wind was blowing. There was all of a pint of chilled bees scattered around some of the hives.

QUIRIN-THE-QUEEN-BREEDER.

Bellevue, Ohio.

Mild Winter in South Dakota

The winter has been very mild for this part of the country, and there has been no snow so far. I am afraid the prospect for clover is not improved by this condition. My bees are wintered in the cellar, and are doing well. The thermometer has not varied 5 degrees from 45 since they were put in.

South Dakota. GEO. F. WEBSTER.

Early Pollen

Mr. Scholl's comments on the need of early pollen caused me to remember a photograph taken in 1906, of bees working on rye flour. When the bees were examined that spring, late in March, a number of strong

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colonies with healthy looking queens were found without brood or eggs, while others not so strong had brood in all stages, some of it emerging.

These broodless colonies were looked into every day for over a week before I discovered that they were entirely out of pollen. I immediately began feeding rye flour mixed in coarse sawdust in the boxes, as shown in the photograph, and in three days 40 colonies used up 35 pounds of flour. A large feeder containing sugar syrup was hardly noticed while the flour held out.

Three days after they started on the flour, eggs in plenty were found in the broodless colonies. I have found it necessary to feed them only one spring since, which was when a severe freeze killed all the bloom and leaves on the early pollen-bearing trees, leaving no other source until dandelion bloom, which came that year in June.

Bees are wintering finely, and there is a heavy growth of white clover, which seems to be all right so far, though the ground is very dry with little snow. We need rain just as soon as the ground thaws out, to save the clover. D. G. LITTLE.

Hartley, Iowa.

Brood-Rearing Begins

I found brood in one of my colonies about Jan. 15, and now over half of them have started brood-rearing. It is down to nearly zero now, and has been below several times this winter. My bees are all on summer stands. R. R. VICTOR TIPPERT.

Quays, Ont. Canada.

L. L. Andrews' Experience

I am enclosing some pictures taken at various times during my 17 years' experience among the bees in sunny southern California.

Beginning the business 17 years ago this winter, by taking 24 colonies from the cliffs and trees near the border line of Orange and Riverside counties, in the Santa Ana Mountain, I have increased by buying, etc., to about 1200 colonies. I have made in one season all the way from a complete failure to as high as an average of 200 pounds per colony.

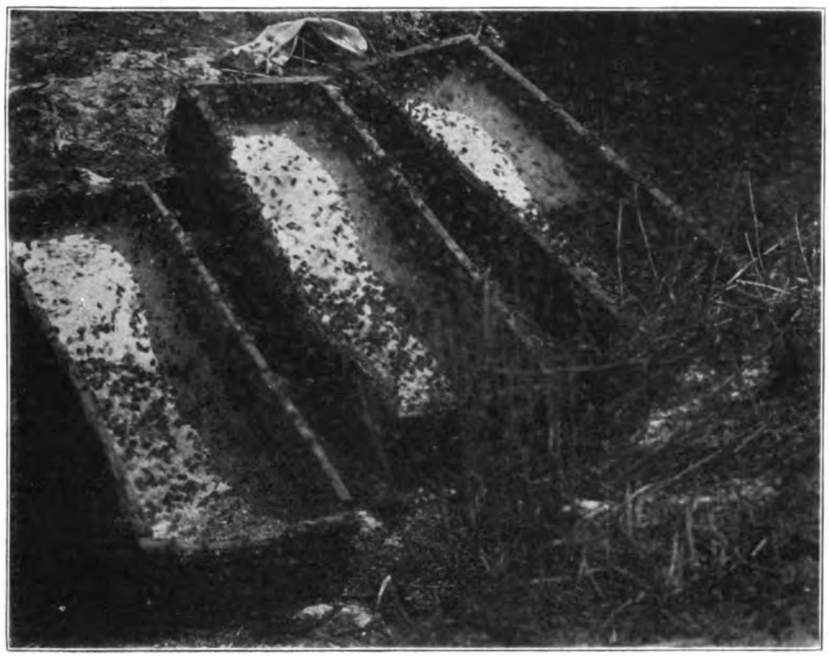
Anticipating a short crop last year, I shipped two carloads to northern Utah, and secured a good crop there, after I had taken the orange honey here. L. L. ANDREWS.

Corona, Calif.

Bees Winter Well in a Cave

I examined my bees in a cave today. They are in fine shape, and the temperature is 45 degrees. I have never lost a colony in the cave yet. The cave is below the level of the ground, and there are three doors to enter it. JOHN DUFFORD.

Atlantic, Iowa, Feb. 10



BEES GETTING FLOUR FOR POLLEN.

NOT BEE-KEEPING ALONE, BUT PLEASURE, TOO.—MR. ANDREWS BACK FROM A HUNT.

Classified Department

[Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

BEES AND QUEENS.

NUTMEG ITALIAN QUEENS, leather color. After June 1, $1.00. A. W. Yates, Hartford, Conn.

GOLDEN QUEENS that produce 5 and 6 band bees. Untested, $1.00; Tested, $3.00.
1A9t Robert Inghram, Sycamore, Pa.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
1Atf 70 Cortland St., New York City.

IMPROVED golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers Send for price list. E. E. Lawrence,
1A8t Doniphan, Mo.

I SHALL requeen all of my colonies this spring. Will sell all one-year old queens for 40 cts. each; $4.20 a dozen. 4Art
Ventura, Calif. E. O. Meserve.

FOR SALE—Golden untested queens 80 cts. each, or $8.00 a dozen. Safe arrival guaranteed. D. F. Talley, R.F.D. 4, Greenville, Ala.

SELECT MATED Howe strain Queens. Send for circular. One untested, $1.00; six for $4.50; $8.50 per 12. Ready about June 10.
D. G. Little, Hartley, Iowa.

QUEENS—Improved red-clover Italians, bred for business; June 1 to Nov. 15. Untested queens, 75c; select, $1.00; tested, $1.25 each. Safe arrival and satisfaction guaranteed. 1A1y H. C. Clemons, Boyd, Ky.

ITALIAN QUEENS ONLY—Untested, $1.00; sel. tested, $1.50 Bees by pound and half-pound. Plans, "How to Introduce Queens," 15c; "How to Increase," 15c; or both 25c Descriptive list free. 3A2t
E. E. Mott, Glenwood, Mich.

GOLDEN QUEENS that produce Golden Workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1.00 each; Tested, $2.00: Breeders, $5.00 and $10.00.
2Atf J. B. Brockwell, Barnetts, Va.

BEES in ½ and 1 pound packages without queen, $1.25 and $2.00. These are young bees free from disease, and will greatly stimulate your weak colonies. We will make good any serious loss in transportation if same is vouched for by your express agent.
Charles C. Schneider, Dancy, Ala.

GOLDEN ITALIAN QUEENS, of best strain. All cells built in strong colonies. No foul brood or other disease. Untested, $1.00; tested, $1.50. Cash with order. Booking orders now. Delivery about April 15.
4A3t Ben Robinson, Taylor, Tex.

GOLDEN and 3-band Italians, also gray Carniolan queens. Tested, $1 00 each; 3 or more 90c each. Untested, 75c each; 3 to 6, 70c each; 6 or more, 65c each. Bees per lb., $1.25; nuclei per frame, $1.50. A discount on orders booked 30 days before shipment. 1Atf
Bankston & Lyon, Buffalo, Leon Co., Tex.

QUIRIN'S famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.
Quirin-the-Queen-Breeder, Bellevue, Ohio.

THREE-BANDED ITALIAN QUEENS and bees of Superior Red Clover Strains (no other races in my apiaries); 15 years a breeder. After May 1, untested queen, $1.00; tested, $1.50. Best breeder, $5.00; 2-fr. nucleus, $2.50. Full colony in 10-fr. Dovetail or Danz. hive, $9.00. Add price of queens wanted with nuclei and colonies. Better book orders now. Circular free. J. W. Leib,
4A1t So. Ohio Ave., Columbus, Ohio.

GOLDEN and 3-band Italians, also gray Carniolan queens. Tested, $1.00 each; 3 or more 90c each. Untested, 75c each; 3 to 6, 70c each;

American Bee Journal

6 or more, 65c each. Bees per lb., $1.25; nuclei per frame, $1.50. A discount on orders booked 30 days before shipment. 3Atf
C. B. Bankston, Buffalo, Leon Co., Tex.

FOR SALE—Choice Golden Queens that produce Golden bees equal to any.
Wm. S. Barnett, Barnett's, Virginia.

MOORE'S Strain and Golden Italian Queens. Untested, $1.00; six, $5.00; twelve, $9.00. Carniolan, Banat and Caucasian Queens, select, $1.25; six, $6.00; twelve, $10.00. Tested, any kind, $1.50; six, $8.00. Choice breeders, $3.00. Circular free. W. H. Rails, Orange, Calif.

ONE of our customers (J. A. Carnes, M. D., Mt. Carmel, Pa.) writes: "Your bees are evenly marked; all golden but the tip. They are the most GENTLE bees I ever handled." Untested queens, $1.00 each. Send for wholesale prices. C. W. Phelps & Son,
3 Wilcox, St., Binghamton, N. Y.

WE WILL requeen all our 2000 colonies this spring. We offer the one-year-old-queens removed from these hives at 40 cents each, any quantity. Italian stock, delivered any time before June 1. Untested queens, this year's breeding, 60 cents each; delivery guaranteed. Book orders now.
Spencer Apiaries Co., Nordhoff, Calif.

FOR GOOD QUEENS AND QUICK SERVICE, you can't do better than place your order with me. I am prepared to handle any size of order at the following prices (Carniolan, 3-band Italian and Golden): One untested queen, $1.00; six for $5.40; twelve for $9.60. One tested queen, $1 50; six for $8.40; twelve for $15.60 One-frame nuclei, untested queen, $2.50; six 1-frame, $15.00; one-frame nuclei, tested queen, $3.00; six 1-frame, $17.40. Full colonies, one for $7.50; two for $14.00. If more frames are wanted than are listed, add $1.00 each for as many frames as are wanted with nuclei. No disease, and satisfaction guaranteed. W. J. Littlefield,
1015 W. 7th St., Little Rock, Ark.

HONEY AND BEESWAX

"NULL'S FAMOUS MELILOTUS HONEY." Sample for stamp. Null Co., Demopolis, Ala.

WANTED—Comb and extracted honey, and beeswax. Write us. Hildreth & Segelken,
265 Greenwich St. New York City.

WANTED—Comb, extracted honey, and beeswax. R. A. Burnett & Co.,
6A12t 173 S. Water St., Chicago, Ill.

WANTED—Choice extracted white and amber honey in barrels or cans. Send sample and price delivered f. o. b. Preston.
8Atf M. V. Facey, Preston, Minn.

FOR SALE.—Water White Alfalfa, Light Amber Alfalfa. Put up in any size packages, any quantity. Write for prices.
11Atf Dadant & Sons, Hamilton, Ill.

FOR SALE

FOR SALE—One hundred and twenty-five eight-frame hives, and five hundred supers with extracting frames, mostly unused, to be sold at a bargain. Philip Goode,
3A3t Lenexa, Kan.

FOR SALE—About one hundred black and hybrid Queens. Will ship any time after March 1st at 40 cts. each, or 12 or more 35 cts. each. D. E. Brothers, Attalla, Ala.

FOR SALE—An ideal bee location, consisting of house, barn, and 40 acres of land. For further particulars, write to 3Att
J. J. Zimmermann (Administor), Alma, Wis.

FOR SALE—Empty second-hand 60 lb. cans—two cans to the case, good as new, 25 cents per case. C. H. W. Weber & Co.,
2146 Central Ave., Cincinnati, Ohio.

FOR SALE—20 colonies of bees in 8-frame Dovetailed Hives; 40 Supers for Comb and Extracted Honey. A 2-Frame Cowan Honey-Extractor. Address, D. Hartman,
Williamsburg, Kan.

FOR SALE—50 to 300 colonies, 8-frame; good condition. E. F. Atwater, Meridian, Idaho.

FOR SALE—1750 Shallow Danzenbaker Extractor Frames; nailed. A. I. Root Co. make. Price, $1.75 per hundred. Will sell in any quantity. The Anna Dean Farm,
4A2t Barberton, Ohio.

FOR SALE—67 swarms Italian bees, healthy and vigorous. Owner has died; hence must be sold. A. Bradley Estate, Lee, Mass.

FOR SALE—One Dadant hive; has 10 wired frames. 1 division-board, and 1 extracting-super; one Rietsche press; one Lewis foundation fastener; 25 nos. Gleanings, 1903; 28 nos. 1902; 22 nos. 1904; 12 nos. 1906; 22 nos. 1907; 25 nos. 1908; 24 nos. 1909; 24 nos. 1910; 24 nos. 1911. 165 nos. American Bee Journal binders; 13 nos. for year 1894; 7 nos. Review, 1905; 9 nos. 1910: 11 nos. 1904. Make offers.
Edwin Bevins, Leon, Iowa.

SUPPLIES.

FOR SALE—Bees, Honey, and Bee-Keepers' Supplies. A. E. Burdick, Sunnyside, Wash.

CHEAP—14 1½ story 8-fr. Hives for 4x5 boxes. Fine shape. Wm. Vollmer, Akron, N. Y.

BEE-KEEPER, let us send our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. White Mfg. Co.,
4Atf Greenville, Tex.

BEE-SUPPLIES for all Bee-Keepers in southern Idado and East Oregon. Wholesale and retail. All we want is an opportunity to figure with you on Supplies. Write for Catalog. It will be ready by Jan. 1, 1913. It costs you a postal card only.
C. E. Shriver, Boise, Idaho.

BEE-SUPPLIES—none better. 35 years of experience.

1 Ideal Winter-Case, complete	$2.50
100 Hoffman Brood-Frames in flat	2.50
500 No. 1 Sections	2.50
100 Section-Holders scalloped	2.00
100 Section Slats, ¼ inch	1.00
1 Champion Smoker	.70
DADANT'S FOUNDATION.	
Medium Brood, per pound	.50
Thin Surplus " "	.66
Extra Thin " "	.60

Discount on larger amounts.
Satisfaction guaranteed or money refunded. R. H. Schmidt.
R. R. No. 3, Box No. 200. Sheboygan, Wis.

WANTS AND EXCHANGES

WANTED—Ten full colonies of bees in 10-frame hives. E. A. Schmalle, Sanborn, Ia.

WANTED—Bees for cash. Give price and number of colonies for sale. 4Att
W. Davenport, 6120 N. Paulina St., Chicago, Ill.

WANTED—To buy an apiary, large or small, in a good location.
Dexter Carder, R. D. 2, Ludlow, Ky.

WANTED to form partnership with a good bee-man in a good location. I will furnish my share of the capital. C. A. Ellis,
4A2t Rt 1, St. Albans, Vt.

WANTED 200 or less colonies of bees—any style hive or box. For sale 250 painted dovetailed supers for 4¼ sections at 25c each in lots of 25 or more Correspondence solicited.
4A2t A. W. Smith, Birmingham, Mich.

BEES WANTED—Could take a Carload of Bees in spring; prefer Langstroth hives, and Italian Bees, but open for others. Give particulars. Address, R. F. Holtermann,
2A3t Brantford, Ont., Canada.

MISCELLANEOUS

BEE-KEEPER'S WIDOW—Sell your bees. I come for them. Frank Allen,
Philipsburg, Quebec, Canada.

LOST—Note book at Cincinnati convention. Will those who paid me for Review please let me hear from them, so they can be properly credited. E. B. Tyrrell,
214 Hammond Bldg., Detroit, Mich.

DETECTIVES WANTED—Young men to operate in own locality, secret service work. Experience unnecessary. Enclose stamp for particulars. Universal Detective Agency,
304 Colcord Bldg., Oklahoma City, Okla.

SITUATIONS.

WANTED—First-class bee-man to take charge of six hundred colonies of bees in South West Texas. Unless competent and able to give references, don't apply.
P. O. Box 1048, San Antonio, Texas.

WANTED—Help in a queen-rearing apiary. Male or female. Experienced or to learn. No drinker or tobacco chewer. Address,
4Atf J. L. Strong, Clarinda, Iowa.

POULTRY

INDIAN Runner Ducks, light fawns, also dark penciled, white eggers, $1.00 and up.
R. O. Dickson, Box 61, La Harpe, Ill.

FOR SALE—Buff Orpington eggs, pure bloods: $1.00 for 15. Satisfaction guaranteed.
2A1y W. H. Payne, Hamilton, Illinois.

FOR SALE—White-egg strain Indian Runner Ducks, White Orpingtons, White Wyandottes, Houdans, Bronze Turkeys. Ducks. $1.25 each. A. F. Firestone,
Broadwell, Athens Co., Ohio.

EGGS for hatching leading varieties poultry, Geese and Belgian Hares. Catalog free. Satisfaction guaranteed. 4A2t
Harvey L. Stumb, Richland Center, Pa.

C. W. DAYTON, Chatsworth, Calif.:

We have produced and bought honey in California for 20 years, and the six cans we bought of you are the best we ever tasted.

CLARENCE V. GLASSCOCK & SON,
Santa Paula, Calif.

Established 1885
WE CARRY AN UP-TO-DATE LINE OF
BEE - KEEPERS' SUPPLIES
Write for our 64-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle the best make of goods for the bee-keeper. Freight facilities good. Let us hear from you.
JOHN NEBEL & SON SUPPLY COMPANY
High Hill, Missouri

CARNIOLAN QUEENS!
Untested $1.00 for one, $5 for six, $10.00 for twelve
Tested $1.50 for one, $8 for six, $15.00 for twelve
These queens are bred from the best strains selected after sending to queen raisers in many different places in Austria. Having bought all the bees within several miles of this Apiary we will agree to replace any untested queens that prove to be hybreds. Some of the best imported Carniolans show slight traces of yellow, but are gentle, not a cross hybred with two or three yellow bands.
WM. KERNAN, Dushore, Pa. Route No. 2.

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ARTISTS
ENGRAVERS-ELECTROTYPERS
542-550 S. DEARBORN ST.
PONTIAC BLDG. CHICAGO.

ALSIKE CLOVER SEED.
Small red, Mammoth, timothy, alfalfa, sweet clover, (white or yellow) millet, rape, blue grass, etc., also seed corn, thoroughbred, four varieties. Catalog apiary supplies free. Honey new in July and later.
F. A. SNELL,
Milledgeville, - - - Carroll County, Ill.

American Bee Journal

BOOKS FOR BEE-KEEPERS

FOR SALE BY

AMERICAN BEE JOURNAL,

HAMILTON, ILLINOIS.

First Lessons in Bee-Keeping, by Thos. G. Newman, revised by C. P. Dadant.—Intended mainly for beginners. Nearly 200 pages, and over 150 pictures. Bound in strong paper cover, showing bee-brood in all stages of development from the newly-laid egg. This book contains the foundation principles of bee-keeping, as its name indicates. Price, postpaid, 50 cts.; or free with the American Bee Journal one full year if paid strictly in advance—by either new or renewal subscription at $1.00.

Fifty Years Among the Bees, by Dr. C. C. Miller.—340 pages, bound in cloth, and illustrated with 112 half-tone pictures taken by Dr. Miller himself. It is a good, live story of successful bee-keeping by a master of the subject, and shows with clearness just how Dr. Miller works with bees and produces tons of honey. Price, $1.00, postpaid; or with the American Bee Journal a year, $1.80; or given FREE as a premium for sending 3 New subscriptions at $1.00 each.

Scientific Queen-Rearing, as Practically Applied, by G. M. Doolittle.—It tells how the very best Queen-Bees are reared in Nature's Way. A good authority says: "It is practically the only comprehensive book on queen-rearing now in print. It is looked upon by many as the foundation of the modern methods of rearing queens wholesale." Price, bound in cloth, 75 cts., postpaid; or with the American Bee Journal a year—both for $1.50. The same book bound in leatherette, 50 cts., postpaid; or free with the American Bee Journal one full year if paid in advance strictly, by either new or renewal subscription at $1.00.

Langstroth on the Honey-Bee, revised by Dadant.—This classic on bee-culture has been entirely rewritten. Fully illustrated. No apiarian library is complete without this standard work by the "Father of American Apiculture." Over 500 pages, bound in cloth. Price, $1.20; or with the American Bee Journal a year, $1.90; or given FREE as a premium for sending 4 New subscriptions at $1.00 each.

Bee-Keeper's Guide, or Manual of the Apiary, by Prof. A. J. Cook.—This book is very instructive, interesting, helpful, and thoroughly practical and scientific. It is perhaps the most complete of any bee-book on the Anatomy and Physiology of bees, and also the Botany of bee-keeping. Bound in cloth, 544 pages, 295 illustrations. Price, postpaid, $1.20; or with the American Bee Journal a year—both for $1.90; or given FREE as a premium for sending 3 New subscriptions at $1.00 each.

A B C & X Y Z of Bee Culture, by A. I. & E. R. Root.—Over 500 large pages describing everything pertaining to the care and management of honey-bees. It is a veritable encyclopedia on bees. 400 engravings. Bound in cloth. Price, postpaid, $1.50; or with the American Bee Journal a year—both for $2.25; or given FREE as a premium for sending 5 New subscriptions at $1.00 each.

Advanced Bee Culture, by the late W. Z. Hutchinson.—The author was an extensive bee-keeper, and a practical, helpful writer on bees and bee-keeping. Over 200 pages, cloth bound. Price, postpaid, $1.00; or with the American Bee Journal for a year—both for $1.80; or given FREE for sending 3 New subscriptions at $1.00 each

Southern Bee Culture, by J. J. Wilder, of Georgia, perhaps the most extensive bee-keeper in the State. It is a real hand-book of Southern bee-keeping. Bound in paper, 145 pages. Price, postpaid, 50 cts.; or with the American Bee Journal a year—both for $1.30.

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The Honey-Money Stories.—64-page booklet of short, bright items about honey. Has 28 fine illustrations, and 8 bee-songs. Its main object is to interest people in honey as a daily table food. Price, postpaid, 25 cents; or with a year's subscription to the American Bee Journal—both for $1.10. Two copies for 25 cts.

The Emerson Binder.—It has a stiff board outside like a book-cover, with cloth back. Will hold easily 8 volumes (36 copies) of the American Bee Journal. Makes reference easy, and preserves copies from loss, dust, and mutilation. Price, postpaid, 75 cts.; or with the American Bee Journal a year—both for $1.60; or given Free as a premium for sending 2 New subscriptions at $1.00 each.

A Modern Bee Farm, by Samuel Simmins The author is a live English bee-keeper. He has kept up with the progress in this line not only in his own country but all over the world. His views are determined, but very well taken, and his points are made with an accuracy which is convincing. Cloth bound, 170 pages. Price, postpaid, $2.00, or with the American Bee Journal one year, both $2.75.

Biggle Bee-Book.—This is a very small cloth-bound, well gotten up book. Its size is 4x5 1-2 inches, and it was designed to be carried in the pocket of the amateur bee-keeper. It contains concise information regarding the best practice in bee-culture. An excellent book for use when a person has only limited time to give to bee-keeping. Price by mail, 50 cents; or with the American Bee Journal one year, $1.35.

ATTENTION!

All bee-keepers all over the world who desire to improve their native or mixed race of bees! **The direct exportation from Carniola of the Gray-Banded Alpine Bee** which until now was conducted by the Imperial Royal Agricultural Association of Carniola, **in the future will be managed on his own account by**

JOHANN STRGAR

Wittnach. P. O. Wocheiner Feistritz, Upper Carniola (Krain), Austria.

58 honors awarded at diverse Agricultural Exhibitions for achievements as a breeder of the best strain of Carniolans and producer of apicultural products.

All queens taken from full colonies and not over one year old. Mailed postage free. **Dead Select Tested** queens will be replaced if returned in 24 hours after arrival, except S. America and Australia. **Dead Select Untested** queens will not be replaced. Send remittance by International M. O. with order. Safe arrival of nuclei and hives **not** guaranteed; orders of this kind must be accompanied by freight expenses. The safest transport of stock is in Carniolan box hives; after arrival or later, the combs can be cut out to fit any frame. Prices of **Select tested** queens March-May, $5; June-October, $3.50. Select Untested Queens. June-August, $2.00. Carniolan Box-Hives with 4-5 pounds of bees, Select Tested Queen, brood, bees, and honey, $7.00. Write in English to the above address for complete Price List and Booklet which will be mailed free.

ITALIAN BEES

Choice Home Bred and Imported Queens

Reared in full colonies

Prices for May:

One untest. queen	$1.25
One tested queen	$1.85
One select tested queen	$2.40
One Breeder	$3.65
One comb Nucleus, no queen	$1.50

Safe arrival guaranteed. For description of each grade of queens send for free catalog.

J. L. STRONG,

204 E. Logan St., CLARINDA, IOWA

ITALIAN QUEENS

$1.00 EACH, $9.00 PER DOZEN.

Queens are reared by as good a method as anybody can rear Queens. My stock is hearty and fine honey-gatherers. All queens shipped by return mail within 24 hours after I receive the order.

M. BATES, R. D. No. 4, Greenville, Ala.

Line Bred Carniolan Queens!

Carniolans winter with their colonies most populous; build up best in the apiary; enter supers more readily; cap their Honey very white; are gentle, and no more inclined to swarm than Italians, if properly managed. Ask for FREE paper, "SUPERIORITY OF THE CARNIOLAN BEE," explaining these bees more fully, and best management for comb and extracted honey. Orders for Queens booked now. Delivery soon. **Untested, $1.00; doz., $9. Tested, $1.50; doz., $12.** **ALBERT G. HANN,**

Carniolan Queen Breeder. PITTSTOWN, N. J.

Early (FROFALCON) Queens "ITALIANS"

Untested Queens to June 1st $1.00 each. After June 1, 90c each. Special prices in large quantities. A 5-pound bucket of Orange Blossom Honey delivered at your door by express for $1.10.

JOHN C. FROHLIGER,

1642 Milvia Street, Berkeley, Calif. Greater San Francisco, Calif.

Falcon Bee-Supplies, etc.

GOLDEN QUEENS

Untested, $1.00, or $9.00 per dozen. Virgins, 40c each, or $4.00 per dozen. My bees are free from any disease whatever. Orders filled promptly. tf

R. O. COX, Box 2, Garland, Ala.

ALSIKE CLOVER SEED.

Small red, Mammoth, timothy, alfalfa, sweet clover, (white or yellow) millet, rape, blue grass, etc., also seed corn, thoroughbred, four varieties. Catalog apiary supplies free. Honey new in July and later.

F. A. SNELL,

Milledgeville, - - - Carroll County, Ill.

A TRIAL PACKET of This Grand TOMATO FREE!

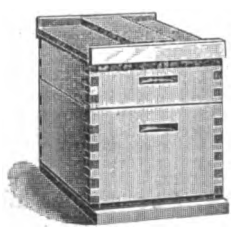
Rowe's GRAND RAPIDS MARKET TOMATO was originated by Mr. George E. Rowe, the Editor of THE FRUIT BELT, America's Greatest Fruit Magazine. This tomato is the very earliest of the heavy cropping varieties, it yields abundantly, a Grand Shipper, and is the Most Delicious Tasting tomato ever put upon the market. In Size, the individual fruits will average a half-pound each, and are very uniform in shape, size, and color. There are few seeds, as the tomato is solid, and cuts like a piece of beef-steak. One grower near Grand Rapids, Mich., sold OVER TWO THOUSAND DOLLARS worth of these tomatoes off of two thousand vines. We are willing to stake our reputation on this tomato. The seed cannot be procured from Seedsmen, as we own the entire stock. We are GIVING IT AWAY to introduce THE FRUIT BELT, and you can get a packet, if you act now.

The FRUIT BELT America's Greatest Horticultural Journal

Shows you How to Make Money Raising Fruit: How to Prune and Thin Properly: How to Control Insects and Plant Diseases by Spraying: What Varieties to Plant: How to Set out New Orchards: How to "Rejuvenate" Old Orchards. THE FRUIT BELT is a Big Illustrated Magazine, Filled with Good Things for You.

TRIAL OFFER We will send THE FRUIT BELT to your address for the remainder of this year, upon receipt of Thirty Cents, and we will send to you, by return mail FREE, a trial packet of Rowe's Grand Rapids Market Tomato seed. Don't delay, the stock is limited. Address- -

THE FRUIT BELT R.112, HAWKINS BUILDING GRAND RAPIDS, MICHIGAN



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28 years experience in making everything for the bee-keeper. A large factory specially equipped for the purpose, insures goods of highest quality. Write for our illustrated catalog today.

LEAHY MFG. CO. HIGGINSVILLE, MO. OMAHA, NEBR.

ROOT'S POWER HONEY-EXTRACTORS

Our new catalog is full of information about these labor-saving machines. With the difficulty of getting competent help, the power extractors are being sold largely in this and foreign countries, and the present demand is far greater than ever before. Read what a California producer says in a letter to a disinterested party, which we were permitted to publish:

GENTLEMEN:—I should like to say a few words in favor of the ball-bearing Root Automatic Extractor, as I believe it is as near perfection as it can be. This machine runs so easily that a few turns to get it up to speed is all that is necessary; and the men, while using the No. 17, which I formerly had, could average only 1000 lbs. per day, while with this machine they can average 2000 lbs. with but one additional man. No apiary can afford to be without one of these machines.

I feel like congratulating The A. I. Root Co. for making an invention that is such a satisfaction, financially to the honey-producers' interests. B. B. HOGABOOM, Elk Grove, Calif.

—HERE ARE A FEW MORE—

A word about the power extractor I purchased from you through H. L. Jones, of Goodna. I found it to work very satisfactorily, and it will do all it is claimed to do and more. I use the gasoline engine for several purposes besides driving the eight-frame extractor, such as driving the washing-machine for the lady of the house, and corn cracking and grinding. I consider it one of the best speculations I made in connection with the apiary. F. C. GOLDER, Pittsworth, Queensland.

Yours of the 16th, also the brake-band for power-extractor, came to hand. Thanks for sending it so promptly. This is my second season with the power extractor. I would not like to be without it now, even if I had only fifty colonies. DAVID RUNNING, Grindstone City, Mich., July 10, 1910.

I received the extractor I ordered of you some time ago. It arrived in good shape. I set it up and extracted 143 quarts of honey, and sold it at 35 cents a quart. The extractor is just fine—does the work completely. F. D. KING, Athens, Ohio, Aug. 16, 1912.

The engine I got of you this spring has done fine. We ran it all fall, and never had any trouble at all. V. V. DEXTER, North Yakima, Wash., Jan. 10, 1911.

For Full Particulars See Our Catalog

The A. I. ROOT COMPANY, Medina, Ohio

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Philadelphia, 8-10 Vine St.
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Des Moines, 565 W. Seventh St.
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SUPERIOR BEE-SUPPLIES
Specially made for Western bee-keepers by G. B. Lewis Co. Sold by
Colorado Honey-Producers' Association,
DENVER, COLO.

BEE-SUPPLIES at low prices. Discount for early orders. Send 25c for 90-page illustrated bee-book for beginners; a chapter on foul brood. Catalog free.
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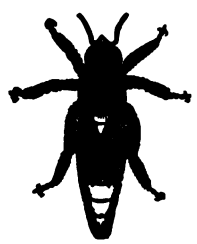
PHARR'S GOLDEN AND THREE BANDED ITALIANS



Untested - - $1.00
Tested - - $1.25
Breeders $3 to $5.00

We have 50 Golden and Three Band Breeders. Can mail from April 1 to 15. Place your orders now. Address,

JOHN W. PHARR,
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Organized Co-operation

THE WESTERN HONEY BEE

A new magazine owned and run by the bee-keepers, filled with Western life as depicted by the best talent on bee topics obtainable. Special department on crop and market conditions during season.

ADVERTISERS
Queen-Breeders' Department
1 inch, $2.00 per issue
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Write for particulars

Published Monthly by the
California State Bee-Keepers' Ass'n
Los Angeles, Calif.
GEO. L. EMERSON, Manager
118 Market Street

THE FAMOUS TEXAS QUEENS
ITALIANS! CARNIOLANS! BANATS!

Are Ready to Mail

PRICES:
Untested - - - 75c Each
$8.00 per doz.
Tested - - - - $1.25 Each
$12 per doz.

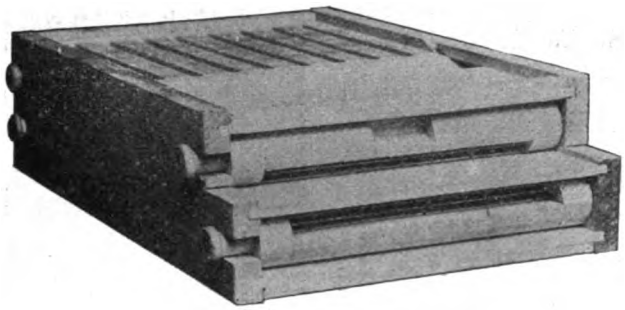
Circulars Free

GRANT ANDERSON,
SAN BENITO, TEXAS.

The Robbers Disturb You When Feeding

Easy Solution, Use the

Schamu Patent Roller Entrance
HIVE BOTTOM



No worry When you are ready, adjust for swarming, or drones. Ask for a free folder

Proper Ventilation for Honey Flow.

PRICES: $2.00 F. O. B. LIVERPOOL, FOR 8 FRAME SIZE.
$2.50 F. O. B. LIVERPOOL, FOR 10 FRAME SIZE.

Dr. Chas. G. Schamu, Liverpool, N. Y.

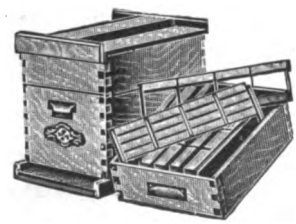
BEE-KEEPER'S NOVELTY POCKET-KNIFE

Your Name and Address will be put on one side of the handle as shown in the cut, and on the other side a picture of a Queen-Bee, a Worker-Bee, and a Drone-Bee. The handle is celluloid, and transparent, through which is seen your name. If you lose this Knife it can be returned to you, or it serves to identify you if you happen to be injured fatally, or rendered unconscious. The cut is the exact size; it is made of best steel. When ordering be sure to write exact name and address. Knife delivered within two weeks after we receive order.

Price, postpaid, $1.00; or with a year's subscription to the American Bee Journal—both for $1.80; or given FREE as a premium for sending us 3 New subscriptions at $1.00 each.

American Bee Journal, Hamilton, Illinois.

AT LITTLE ROCK, ARK.,



You can get your Bee Supplies and save time by sending your order to us, we can save you in FREIGHT as well as Money on supplies. Send for catalog of Supplies and Queens.

One Untested Queen, $1.00; six, $.500; twelve , $0.00. One Tested Queen, $1.50; six, $8.50; twelve, $15.00. One-frame Nuclei, Untested Queen, $2.50; six 1-frame, $15.00; one-Frame Nuclei, Tested Queen, $3.00; six 1-frame, $17.00.

If more Frames are wanted than are listed, add $1.00 each for as many frames as are wanted with Nuclei. No disease, and satisfaction guaranteed.

Little Rock Bee-Supply Company

1015 W. 7th Street - - - - Little Rock, Arkansas

FOLKS LIKE

Michigan Comb Honey

However, it is so scarce that they can't get much of it. It is a case of under production. Better make this year a comb honey year. Pages 12 and 13 of our Catalog show comb honey outfits—and they are all Root's goods. Beeswax wanted.

Italian Bees and Queens in half-pound and pound packages.

M. H. HUNT & SON,
143 Condit St., - Lansing, Mich.

If You Need QUEENS

for Queenless Colonies, you want them in a hurry, We can fill your order for choice tested Queens by return mail for $1.00 each. Three band Italians. No disease. Satisfaction guaranteed. Send for price-list.

J. W. K. SHAW CO.,
LOREAUVILLE, Iberia Parish, LA.

P-O-R-T-E-R
(Trade mark)

BEE-ESCAPE

SAVES {HONEY TIME MONEY} AT ALL DEALERS

Each, 15c; Dozen, $1.65, postpaid

If your Dealer does not keep them, order from Factory, with complete instructions.

R. & E. C. Porter, Mfrs.
Lewistown, Illinois

3-Band Long-Tongued
Red Clover Italian
QUEENS

FOR SALE.—The 3-band queens are of the A. I. Root Co.'s improved long-tongued bees which have proven themselves to be the best of honey-producers. I use the Doolittle and Miller plans for queen-cells. One untested queen, 75 cts; 6 for $4.00; 12 for $7.50; 25 for $13.50; 50 for $25.00; 100 for $45.00. Double this price for tested queens. One-frame nucleus, $1.50. 2-frame, $2.50; 3-frame, $3.50. To each nucleus add the price of queen. No personal checks accepted

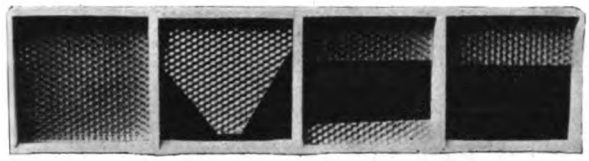
J. B. ALEXANDER, CATO, ARK.

American Bee Journal

"Falcon" Foundation!

Made in Our Plant at Falconer, N. Y.

From the sweetest and purest beeswax that can be obtained. No old stock—made daily by our own superior methods. Falcon foundation is coming in more constant use every year, and has proved itself to be most readily accepted by the bees.



Other Goods:—Double grooved Hoffman brood-frames as well as sections will be needed for spring use. As it takes a lot of time to put up frames and sections with starters or full sheets, it would be well to look up your requirements. It will give you ample time by ordering now.

Light Standard Brood,	**1 lb., 58c; 5 lbs., 57c.**	**Light Section,**	**1 lb., 65c; 5 lbs., 64c.**
Extra Light Standard Brood	**1 lb., 60c; 5 lbs., 59c.**	**Extra Light Section**	**1 lb., 70c, 5 lbs., 67c.**

Write for samples of our foundation and Red Catalog postpaid. All goods guaranteed. A trial will convince you.

Distributors everywhere. Factory W. T. Falconer Mfg. Co., Falconer, N. Y.

Central States distributers: H. S. Duby, St. Anne, Ill., C. C. Clemons, Bee-Supply Co., Kansas City, Mo.

W. T. FALCONER MFG. COMPANY, - FALCONER, NEW YORK

Where the good bee-hives come from

BEE-KEEPING IS A BREEDING PROBLEM.

And The Queen is The Important Factor in it.

WHEN BUYING QUEENS WHY NOT BUY THE VERY BEST

Bred from well selected stock and reared under most advantageous conditions established through fifteen years of practical and scientific experience.

Choice Italian Queens Untested, during April and May, $1.25 each. In lots of ten or more, $1.15 each. Prices in larger lots upon application. Send for four page circular on the Italian Bee.

RALPH BENTON,

The Tuscan Apiaries

OFFICE: 2074 WEST 27th ST. **LOS ANGELES, CALIFORNIA**

"Griggs Saves Your Freight" **TOLEDO** **"Griggs Saves Your Freight"**

We have made arrangements with a large Southern breeder to furnish us with BEES and QUEENS, and orders will receive our prompt attention commencing April 1. First come, first served. Be first.

ORDER BEE-SUPPLIES NOW.—Large car of new goods on the way to fill the rush of early orders coming in. Send your orders now.

POULTRY FEEDS AT WHOLESALE.—Write for special prices of feed to be shipped with your order of bee-supplies. Cut out the middle man.

BEESWAX.—We can use five tons of good first-class wax. Send yours in now. Cash or in trade. Free catalog. Ask for one.

S. J. Griggs & Co., 24 N. Erie St., Toledo, Ohio

CROP REPORT BLANKS

Will be sent to every subscriber of the "Review" in proper time, and the crop conditions as given by these reports will be published later.

BRINGING BUYER AND SELLER TOGETHER

for the sale of your honey crop will be another work that will be carried on the same as last year.

CANS AND GLASS PACKAGES

will be furnished the subscribers by the "National" the same as last year. We may have better prices.

THE NATIONAL CONVENTION REPORT

began in the March number. Don't you want to read it? One dollar gives you the "Review" a year. Your sample copy is waiting your request. Better send for it

The Bee-Keepers' Review, 214 Hammond Bldg., Detroit, Mich.

We Make a Specialty of Manufacturing SECTIONS

They are the Finest in the Land—None Better.

Our Prices will make you smile. We want to mail OUR BEE-SUPPLY CATALOG to every bee-keeper in the land. It is FREE. Ask for it.

H. S. Duby, St. Anne, Ill., carries a full line of Our Goods, and sells them at our regular catalog prices.

AUG. LOTZ & CO.

Boyd, Wis.

Please mention Am. Bee Journal when writing.

W. H. Laws

Will be ready to take care of your queen orders, whether large or small, the coming season. Twenty-five years of careful breeding brings Laws' queens above the usual standard; better let us book your orders now.

Tested queens in March; untested, after April 1st. About 50 first-class breeding-queens ready at any date.

PRICES: Tested, $1.25; 5 for $5.00; Breeders, each $5.00. Address

W. H. Laws, Beeville, Texas.

Please mention Am. Bee Journal when writing.

Comb-Honey Producers

Send for illustrated circular of new Rauchfuss Combined Section Press and Foundation Fastener. Sold with guarantee to give satisfaction, and delivered anywhere in U. S. on remitiance of $3.00.

Colorado Honey-Producers' Association

Denver, Colorado

American Bee Journal

HONEY AND BEESWAX

CHICAGO, April 17.—Comb honey has cleaned up; this market being practically bare at this time. But that is not the fact with extracted, and there is especially heavy offerings of the alfafa and sweet clover grade. Fancy comb brings 17@18c per pound with other grades from 1@5c per pound less. Extracted clover and lindens bring 9@10c per pound. Other white honeys 7½@9c per pound. Beeswax from 31@32c per pound.
R. A. BURNETT & CO.

INDIANAPOLIS, April 18.—The market is practically bare of fancy white comb honey. No. 1 white is selling at 16@17c per pound; amber comb in slow demand and at varied prices. Best extracted sells at 11@12c per pound in 5-gallon cans, according to quantity at one shipment. Beeswax is in good demand, and producers are being paid 30c per pound, cash. WALTER S. POUDER.

LOS ANGELES, April 15.—Stocks of white extracted honey on the Coast are entirely exhausted, and are not quotable at any price. Light amber extracted honey is in light supply, and is quotable in carload lots at 6¼c f. o. b. Coast. Comb honey is in very light supply, and there is scarcely enough left for local consumption. Beeswax is selling to eastern buyers at about 30c per pound.
HAMILTON & MENDERSON.

CINCINNATI, April 17.—There is a fair supply of comb honey on the market, and we are selling our fancy double-decker comb honey at $3.75 to $4.00 a case; fancy extracted honey in 60-pound cans at 9@10c a pound, and amber extracted honey in barrels at 6½@8c a pound, according to the quality and quantity purchased. For choice bright yellow beeswax we are paying 28@30c a pound delivered here, and if taken out in trade 2c a pound more. THE FRED W. MUTH CO.

KANSAS CITY, Mo., April 17.—The supply of comb honey is entirely exhausted. We still have some demand. The supply of extracted honey is light; demand also light. We quote as follows: Extracted, white, per pound, 8@8½c; amber, 7@7½c. Beeswax, per pound, 25@28c.
C. C. CLEMONS PRODUCE CO.

SAN FRANCISCO, April 15.—The demand for comb honey is very slight; only for dark and cheaper grades. New crop soon expected. Extracted, 7½@8c for water white; light amber, 6½@7c, and others 5@6½c. Beeswax 23@30c, according to quality and color. Our late rains may help, but prospects are not so favorable for a good season here in central California, owing to the winds which have dried up everything.
JOHN C. FROHLIGER.

CINCINNATI, April 18.—The market on comb honey is in good demand, with a fair supply. No. 1 white selling at $3.65 per case of 24 sections wholesale, and $4.00 per case retail. There is no demand for off grades. Light extracted honey in 60-pound cans, 8@8½c. White extracted honey in 60 pound cans, 9@10c. Beeswax is selling at $34 per 100 pounds.
The above are our selling prices, not what we are paying. C. H. W. WEBER & CO.

DENVER, April 18.—We quote comb honey in a jobbing way at the following figures: No. 1, $3.05; fancy, $3.15 per case of 24 sections. Extracted honey, white, 9c; light amber, 8c; strained, 6¾@7c. We pay 28c in cash and 30c in trade for clean, yellow beeswax delivered here.
THE COLO. HONEY-PRODUCERS' ASS'N.
FRANK RAUCHFUSS, *Mgr.*

NEW YORK, April 28.—We have really nothing to report of any consequence. Some few little lots of comb honey still arriving, but not to cut any figure. If in good condition, it will bring about the same price as in our last quotation, but where some lots are beginning to show crystallization, they will have to be sold at a much lower figure. Extracted honey, all grades, is very quiet. While the stock is not heavy, there are shipments coming in right along from the West Indies, more than to supply the demand. No change in prices. Beeswax steady at 30@32c per pound, according to quality. HILDRETH & SEGELKEN.

BOSTON, April 15.—Fancy white comb, 16@17 per pound; No. 1, 15@16c. Fancy white extracted, 11@12c; light amber, 9@10c; amber, 8@9c. Beeswax, 30c. BLAKE-LEE CO.

GOLDEN ADEL QUEENS
AND BEES BY THE CAR LOAD

You will make money if you deal with me and get my factory price on Bee Supplies. I have millions of fine Sections. I am the oldest and largest Bee Supply manufacturer in the Northwest. Send for Catalog.

CHARLES MONDENG,
145 to 100 Newton Ave. N.
MINNEAPOLIS, MINN.

There has been no new blood added to my strain for over 8 years. They are **Pedigreed**
Penn C. Snyder
Swarthmore, Pa.

H. J. PFIFFNER
Wholesale and Retail dea er in Bee-keepers' Supplie
Send for Catalog
Emmetsburg, Iowa.

BARNES' Foot-Power Machinery

Read what J. I. PARENT, of Charlton, N. Y., says: "We cut with one of your Combined Machines last winter. 50 chaff hives with 7-in. cap, 100 honey-racks, 500 brood-frames, 2,000 honey-boxes, and a great deal of other work. This winter we have double the amount of bee-hives, etc., to make, and we expect to do it with this Saw. It will do all you say it will." Catalog and price-list free.

Address, W. F. & JOHN BARNES
995 Ruby St., Rockford, Ill.

Notice to Bee-Keepers

I am now taking orders for pound packages and nuclei; also for my leather-colored strain of Italian queens mated on an island, and bred in their purity. Free from all disease. Prices made on application. My guarantee — Your money back if not satisfied; a liberal discount on all large orders. Reference, The American Exchange Bank of Appalachicola, Florida.

A. B. Marchant

QUEENS and SUPPLIES
Complete queen circular on request.
Largest stock bee-supplies south Ohio River. 64-page catalog on request.
The Penn Co., Penn, Miss.

OUR HAND-MOORE STRAIN
3-Band Italians
Are the best Honey-Gatherers. They spoil our white-clover honey by mixing it with red clover. Record tongue reach 23-100 of an inch. Bred strictly for business. Untested 75c; 12 for $8.00; 50 for $25.00.
LATSHAW HONEY COMPANY,
CARLISLE, IND.

Eastern Bee-Keepers

Furnishing bee-supplies has been our business for 22 years. We are also honey-producers, operating several hundred colonies for honey. We have started many people who have made a success of the business. We still furnish them their supplies. They stick to us. You will if you get acquainted. We advocate only practicle articles. Let us mail you our catalog on what you may need.

I. J. STRINGHAM.
105 Park Place, New York City
APIARIES: Glen Cove, L. I.

American Bee Journal

"If goods are wanted quick, send to Pouder."

BEE-SUPPLIES

EQUIPMENT Store room built expressly for the business; large concrete basement with just enough moisture to prevent breakage in sections; no shrinkage in dovetailed corners of supers and hives.

QUALITY Root goods at factory prices. The kind that I have sold for nearly a quarter of a century, and the kind that you can afford to recommend to your neighbors. I might have increased my profits for a short time by handling other goods, but I would not have remained so long in business. Many articles in my catalog can reach you by Parcel Post, and I assume all responsibility in safe delivery of the goods. Catalog free.

WALTER S. POUDER, Indianapolis, Ind.
873 Massachusetts Avenue

Dr. Henry Jones Says:

That Every Bee-Keeper Should Have a **BOYUM SECTION PRESS** and a **BOYUM FOUNDATION FASTENER.** Good reason why. They are inexpensive and unequalled for SPEED, EFFICIENCY and PRACTIBILITY. Send for circulars telling all about them to **BOYUM APICULTURE CO., Rushford, Minn.**

COMB FOUNDATION

WITH THE SAME TASTE
WITH THE SAME SMELL
WITH THE SAME FIRMNESS
AS THE COMB THE HONEY-BEE MAKES

How do you Obtain Yours?

THE OLD WAY:—By selling your Beeswax. Reasonably sure but expensive.

THE DITTMER WAY:—By shipping your wax to us and having it made into Comb Foundation and then returned to you.

Write us for further information and samples, also prices and discounts on Bee-Supplies

Gus Dittmer Company, Augusta, Wisconsin

Rebuilt Remington Typewriters (No. 6)
or Smith Premier Typewriters (No. 2)

Prices, $30 to $35. Send $5.00 down and we will send the machine. **GREAT OPPORTUNITY.** Address,

Remington Typewriter Company
(Incorporated)
325 Perry Street, Davenport, Iowa

Bee-Supplies

We are Western Agents for
"FALCONER"

Write for Fall Discounts—we can save you money. 1Atf

C. C. Clemons Bee-Supply Co.,
128 Grand Ave., Kansas City, Mo.

PAGE-KENKEL MFG. CO.

MANUFACTURERS OF THE
"NONE BETTER"
BEE-KEEPERS' SUPPLIES.

Thirty Years' Experience

Perfect sections from young, white, basswood. White Pine Hives and Supers. Excellent Shipping-Cases, Brood-Frames, Separators, etc.
We invite your correspondence.

Golden or 5 Band, 3 Band Italian and Carniolan Queens.

Untested Queen, 1 for $1.00. Tested Queen, 1 for $1.50. Nuclei with untested Queen, 1 frame $2.50, two for $3.50. Nuclei with tested Queen, 1 frame $3.00, two for $4.00. Quick service and satisfaction guaranteed.

Page-Kenkel Manufacturing Co.,
New London, Wis.

English Honey-Spoon.

This fine 90c Honey-Spoon and the American Bee Journal for one year—both for only $1.75. Send all orders to the American Bee Journal, Hamilton, I

ITALIAN QUEENS!

Northern bred

Superior winterers, second to none. My free list explains it all. Untested, $1.00; select tested, $1.50. Bees by pound or half pound. Plans, "How to Introduce Queens" 15c; "How to Increase" 15c; both 25c.

E. E. MOTT - Glenwood, Mich.

FOR SALE

YOUNG ITALIAN BEES

½ lb., $1.25; 1 lb., $2.00; 2 lbs., $3.75; 3 lbs., $4.50. Untested Queen, $1.00; Tested, $2.00. Nuclei, $1.25 per frame. No disease. Also Apiaries of from 50 to 500 colonies.

Would like to correspond with anyone desiring location in fine, sweet clover belt, where the queen-rearing business or shipping bees by the pound can be carried on under ideal conditions. Always have big swarms issue by April 1.

Stover Apiaries,
Mayhew, Miss.

AN ACTIVE SEASON JUST AHEAD!

A carload of perfectly new goods is just on hand from the factory. This brings up our assortment so that we can now furnish almost anything listed in the catalog at once.

Hives should be ordered at once if they are to be ready for spring. Frames, and other inside fixtures too, should be put together now; and as this is a dull season with most of our customers, the work can be done now with no extra expense.

If you are wanting any special goods, orders ought to be in our hands within the next few days. Other cars will be coming from the factory, and we can save you considerable in transportation charges by having your goods come with ours in the cars.

Our new catalog is out, and mailing nearly completed. If you are not on our mailing list, send us a postal-card request for this catalog.

If you want to buy in quantities considerably larger than quoted in the catalog, give us a list of your needs and we will quote price accordingly.

If you have never tried Root quality goods, make a beginning this season. You will not be disappointed in results. Our branch is maintained for service in this line, and we can give it to your entire satisfaction.

We are sole agents in Ohio for the Roller Tray Incubator and Brooder, the best in the market. Write for catalog.

C. H. W. WEBER & CO.

2146 Central Avenue.

CINCINNATI, - - - - - - - - OHIO.

DADANT'S FOUNDATION

DADANT'S FOUNDATION

DADANT'S FOUNDATION

DADANT & SONS, Hamilton, Ill.

Dear Sirs :—In reply to your favor, I take this opportunity to let you know that I am a customer of yours. I used considerable of your Surplus foundation some time ago, but got side-tracked. I would have saved money by using your foundation. R. M. Guthrie, Reno, Nev.

DADANT & SONS, Hamilton, Ill.

Dear Sirs:—Mr. N. E. France's recommendation of your goods is all O. K., but I have one that is more convincing, at least for me. I own five yards, and nearly all the combs in them are drawn from Dadant's foundation. There must be a reason.
J. M. Donaldson, 51 E. 3d St., Mooreston, N. J.

Agents Everywhere **Write Today**

DADANT & SONS,
HAMILTON, ILLINOIS.

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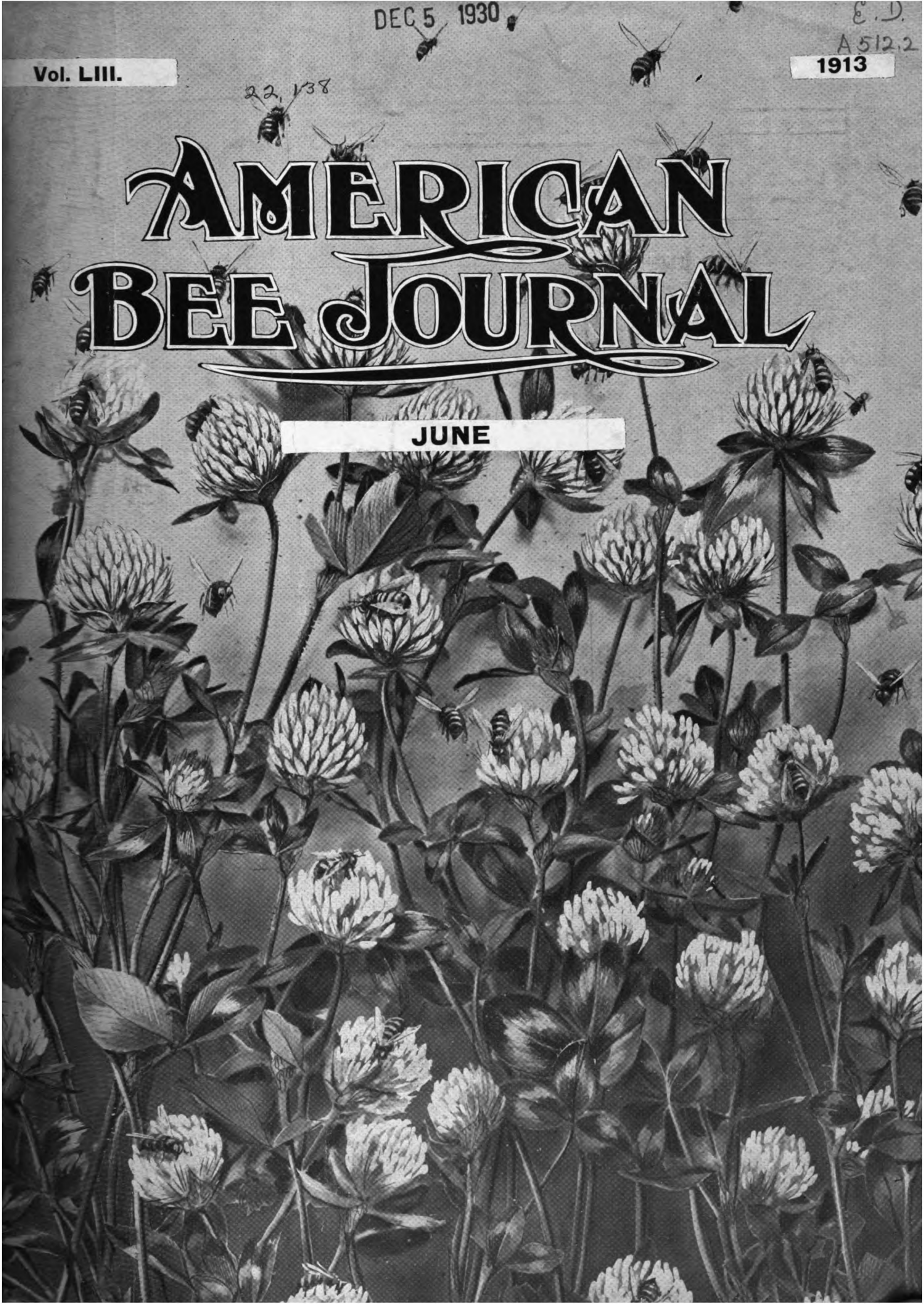
Vol. LIII.

22,138

1913

AMERICAN BEE JOURNAL

JUNE



American Bee Journal

AMERICAN BEE JOURNAL

PUBLISHED MONTHLY BY
American Bee Journal
1st Nat'l Bank Bldg. Hamilton, Illinois

IMPORTANT NOTICE

THE SUBSCRIPTION PRICE of this Journal is $1.00 a year, in the United States of America and Mexico; in Canada, $1.10; and in all other countries in the Postal Union, 25 cents a year extra for postage. Sample copy free.

THE WRAPPER-LABEL DATE indicates the end of the month to which your subscription is paid. For instance, "dec13" on your label shows that it is paid to the end of December, 1913.

SUBSCRIPTION RECEIPTS.—We do not send a receipt for money sent us to pay subscription, but change the date on your address-label, which shows that the money has been received and credited.

Advertising Rate, Per Agate Line, 15c.

14 lines make one inch.
Nothing less than 4 lines accepted.

DISCOUNTS:

3 times 14c a line 9 times 11c a line
6 " 12c " 12 " (1 yr.) 10c a line

Reading Notices, 25 cents, count line.
Goes to press the 25th of the preceding month.

Southern Bee-Keepers!

I have a Large and Complete Stock of BEE-SUPPLIES at **Cordele, Ga.**, and have erected a large Warehouse and filled it with New Bee-Supplies at **O'Brien, Fla.**, near Live Oak, the best shipping-point for all sections of Florida, Southeast Georgia and Southern Alabama.

Send all orders to **CORDELE, GA.**, and state from which point you wish your Supplies shipped. J. J. WILDER.

NO 1913 CATALOGUE! To keep up the old price I will avoid all expenses possible and will not print any catalog. I have some 1012 left. Order from your old catalog, or I will mail you one.

Best white pine hive 1½ story 8 frame, $1.45; 10 frame, $1.60 in lots of 5. Best sections per 1000, $4.40; 2000, $8.60; 3000, $12.60; 5000, $20; No. 2, 50c less. Plain 25c less.

H. S. DUBY, St. Anne, Ill.

BEE-KEEPERS

Your busy season is close at hand, get wise and place your order with the supply dealer who will save you money and serve you best with **Root's Quality** sections, foundation, frames, smokers, extractors, etc. I can serve you without **delay**. My 1913 catalog tells all about these things, besides it contains a lot of information to those interested in bees.

Special attention given to the breeding of three-banded Italian bees and queens.

Catalog free.

EARL M. NICHOLS
Lyonsville, - - - Mass.

Do You Love SWEETS?

Ralph Waldo Emerson Did

He said you can attain to royalty by loving sweets.

"He who knows what SWEETS .... are in the ground, the waters, the plants, the heavens, and how to come at these enchantments, is the rich and royal man."

"HOW to come at these?" Aye, there's the rub.

How many people miss them! and perhaps some of these many, strange to say, *keep bees*. Want to know how? Send $1.00 for a year's subscription to

The Guide to Nature

Arcadia: Sound Beach, Conn.

It is edited by Edward F. Bigelow, a sweets extractor—in other words, "a bee-man" and a naturalist.

NOW THEN

For Your Early Bee-Supply Orders

Send us a list of the Bee-Supplies you want. Our prices will astonish you.

Also send us your Old Combs—we will render your wax and save you money.

Write for particulars

THE FRED W. MUTH CO.
"The Busy Bee-Men"
204 Walnut Street, CINCINNATI, OHIO

MARSHFIELD GOODS

BEE-KEEPERS:—

We manufacture Millions of **Sections** every year that are as good as the best. **The CHEAPEST** for the Quality; **BEST** for the Price. If you buy them once, you will buy again.

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PRATER-MYRICK CO. have been doing business in Real Estate, Renting, Loans, Insurance, etc., in Sandpoint, Idaho, for a number of years past. Mr. Prater has been in this county (Bonner) for nearly 20 years. For honorable, upright and square dealing the firm is well known to all here. Fortunately, I have been able to acquire the interest of Mr. Myrick in the concern, and now the firm is known as "PRATER-YORK CO.," and will continue the same lines of business.

For readers of the old American Bee Journal interested in this part of our great country, we will be glad to answer enquiries, or send our *free* Circular, which gives considerable information that is reliable about this locality.

There is much interest manifetsed by people living in the Eastern and Southeastern parts of the United States in this great and growing Northwest, which is destined to be occupied by many wide-awake people who are looking for a new home, and where opportunities for advancement are greater than in the older and overcrowded parts of our country. Let us hear from you, if you are thinking of making a change. Lots of unoccupied bee-territory in this county.

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This is the title of a 16-page circular, 3½x6 inches in size, gotten up for selling honey. It contains an article on why honey should be eaten, which gives much valuable information on honey. It also has many recipes for the use of honey, both as a food and as a remedy. It ought to be distributed freely among honey-customers. The prices are as follows:

Sample copy free; 10 copies, postpaid, 25 cents; 50 copies, 90 cts.; 100 copies, $1.50; 250 copies, $3.00; 500 copies, $5.00; 1000 copies, 9.00. Your business card will be printed free on the front page on an order of 100 or more copies.

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Gentlemen:—Last October I purchased three queens of you for my experiments with different queens, and wish to ask you if queens of this season will be of this stock? One of the Queens is the most remarkable queen I ever owned for prolificness, which she transmits to all her daughters.
Riddle, Oreg., July 4, 1912. L. W. WELLS.

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Gentlemen:—The queen you sent me came in good condition. She was one of the best I have ever bought. I have her introduced and she is doing business as if to the manor born I want another of those beautiful queens as soon as I can possibly get it for making up my fair exhibit. Please send a fine one. Such queens certainly advertise your business.
Darlington, Wis., July 31, 1912. C. R. BRIDGMAN.

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Portales, New Mexico, July 10, 1912. J. W. HOUTZ.

We usually begin mailing Queens in May, and continue thereafter on the plan of "first come first served." The price of one of our Untested Queens alone is $1.00, or with the old American Bee Journal for one year, both for $1.60. Three Queens (without Bee Journal) would be $2.75, or six for $4.50. Full instructions for introducing are sent with each Queen, being printed on the underside of the address card on the mailing-cage. You cannot do better than to get one or more of our fine Standard-bred Queens.

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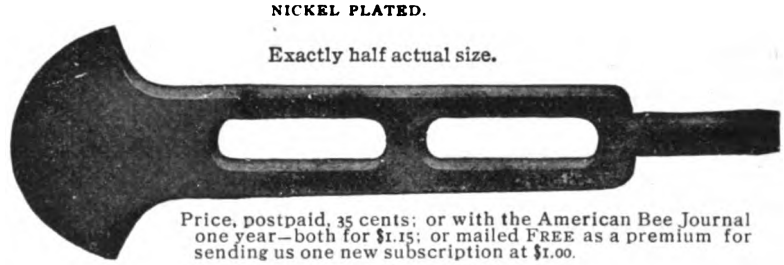

Price, postpaid, 35 cents; or with the American Bee Journal one year—both for $1.15; or mailed FREE as a premium for sending us one new subscription at $1.00.

This is a special tool invented by a Minnesota bee-keeper, adapted for prying up supers, and for general hive and other work around the apiary. Made of malleable iron, 8½ inches long. The middle part is 1 1-16 inches wide, and 7-32 thick. The smaller end is 1⅞ inches long, ½ inch wide, and 7-32 thick, ending like a screwdriver. The larger end is wedge-shaped, having a fairly sharp, semi-circular edge, making it almost perfect for prying up hive-covers, supers, etc., as it does not mar the wood. Dr. C. C. Miller, who has used this tool since 1903, says: "I think as much of the tool as ever."

American Bee Journal, Hamilton, Illinois.

American Bee Journal

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This country, politically, Switzerland Republic, lies geographically in Italy, and possesses the best kind of bees known.

Please mention Am. Bee Journal when writing.

Statement of the Ownership, Management, Circulation, Etc., of the American Bee Journal, published monthly at Hamilton, Ill., required by the Act of August 24, 1912.

Owner—C. P. Dadant, Hamilton, Ill.

Business Manager—M. G. Dadant, Hamilton, Ill.

Known bondholders, mortgagees, and other security holders, holding 1 percent or more of total amount of bonds, mortgages or other securities—None.

C. P. Dadant, Editor.

Sworn to and subscribed before me this 24th day of March, 1913.

T. R. KLAY,
[SEAL.] *Notary Public.*

(My commission expires March 25, 1915.)

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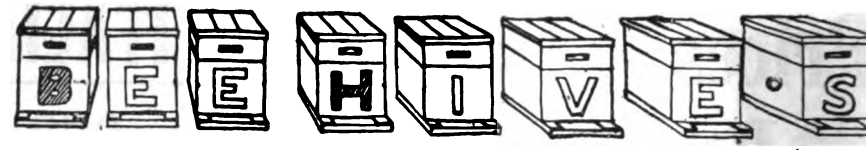

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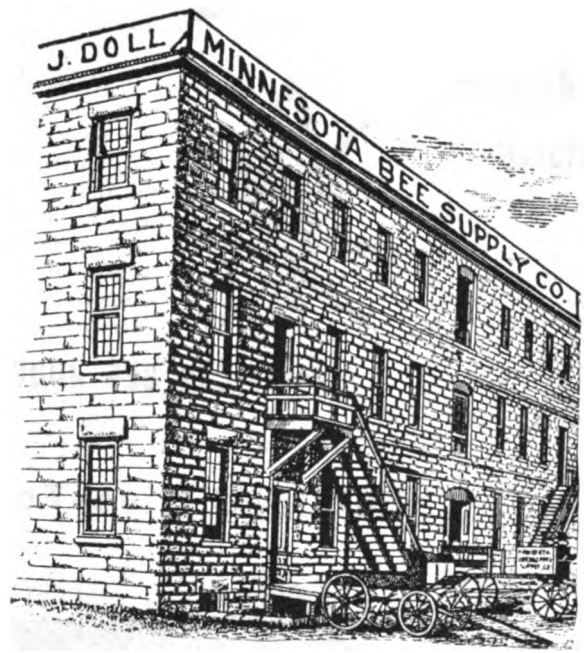

The picture that we showed in the Apr. issue of this Journal was of our mill and property at Buffalo, Minn. This cut shows our factory at Minneapolis.
We manufacture Dovetailed hives, supers, sections, shipping-cases brood-frames, separators, also berry boxes and crates. Catalog free.

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C. P. DADANT, Editor.
DR. C. C. MILLER, Associate Editor.

HAMILTON, ILL., JUNE, 1913

Vol. LIII.—No. 6

EDITORIAL COMMENTS

Shipping Bees or Queens—Certificates Needed

Many States now have laws which forbid the shipment of bees without the accompanying certificate of inspection of the apiary from which they are shipped. In States having no inspector, a sworn statement made before a notary or justice of the peace is usually sufficient. We will gladly inform those of our readers needing additional information, and ask the different inspectors to forward a copy of their regulations to this office.

Mailing Queen-Cages in Cotton Bags

We are in receipt from Mr. Frank Rauchfuss, of Denver, of four queen-cages with bees, packed in a light cotton mailing-bag. The bag is of very light texture, admitting the air through. This package has the advantage of protecting the cages from strong air currents, keeping them together more efficiently than a string of twine, and yet leaving sufficient air for their breathing. It is worthy of further trial.

Foul Brood, Wastefulness and the High Cost of Living

The writer one day noticed a little cluster of excited bees on the ground in a poultry enclosure. Upon examination he discovered that they were bent upon gathering a lump of granulated honey, which had been thrown there with other table-waste. The chickens had eaten everything but the wasted honey, butter and bones.

We complain of the high cost of living and seek a remedy in every direction but the right one. The American way is to waste, waste in all directions. We wasted our forests, under the plea that it was more profitable to burn them off than to save them. We waste our coal at the mines, in many places allowing the slack to consume itself by spontaneous conbustion, or by contact with the air. We waste our land, leaving innumerable spots uncultivated, even in the heart of civilization. We waste our manures, often even contaminating our streams by using them to wash away useful fertilizers. But above all things we waste our food.

This reproof is not intended for the foreigner who has been raised on economical methods in a thickly settled country. In all probability, the foreign-born American who reads this has been taught, in his young days, to consider bread and meat as *sacred*, under the plausible plea that he might starve some day, for want of such food as he proposes to throw away, and also because so many millions in the world do not get as much as they want to eat. But our American education is different. Many a bright, neat, sensible and educated American mother thinks nothing of teaching her children to take a heaping plate-full of all kinds of food, and leave half of it unconsumed, in a disgusting heap, made of a mixture of all the dainty dishes served upon the table. Nay, in many cases, children are taught that it is *good manners* to accept or take more of one dish than you can possibly use and leave two-thirds of this upon your plate. Thus meat, gravy, bread, potatoes and other vegetables, fish, butter, jellies, pie and *honey* are carried to the back-yard or thrown into the slop-pail.

When this waste takes place upon the farm, it is but half waste, for the hogs and the chickens consume most of the remnants, so however expensive it may be to feed bread, cakes, jellies or honey to the hogs, the food is not altogether wasted. But what of the cities? How much of this willful and unnecessary waste is made to clog the sewers or sour and rot in the refuse can in the back-lot?

What has this to do with bee-culture? Why should a bee-journal take notice of this bad custom and sound a note of warning? Because, as far as honey is concerned, the waste constitutes a danger. Because if one-fifth, or even only a tenth, of the honey served upon the tables is thrown away, there is a chance in many instances of the bees getting at this honey second-hand and bringing to the hive, with it, undesirable bacteria. The very best honey may contain in it germs which, *absolutely harmless to human beings*, mean ruin to the brood.

Why are brood diseases almost permanent around many large cities, in this country, if it is not owing to the fact that some of the honey shipped from all parts of the country is, to a large extent, exposed where the bees can reach it?

One will say that, in most cases, the honey is healthy for the bees and entirely free of germs. True. But we know that in case of contamination, the microscopic germ which causes brood diseases is so small and so sparingly scattered in the honey that scien-

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tific examination has usually proven inadequate to find it. In other words, those germs of bacilli, which are *entirely harmless to man*, are so infrequent in contaminated honey that a microscopic examination usually fails to detect them. But they are situated in the most favorable condition for development in the stomach of the larvæ.

Aside from the dangers arising, through the wasting of honey and other foods, is it not time for our civilization to take notice of the wanton loss which has thus far been considered fashionable and proper?

We dare say that, our country through, from one-tenth to one-fifth of all the food served upon our tables finds its way to the dung heap, untasted. Think of wasting 10 to 20 percent of your food! How long would this amount support you in your old age?

This habit is not confined to the wealthy and well-to-do, but is noticeable even among the wage-workers, though in less degree. Neither is this of any benefit to the house-keeper, for she has to prepare so much more food, and after each meal has an ugly mess to clean up, made of a mixture of the neatest and finest morsels that she has artistically prepared. Aside from the high cost of living created by such an untidy habit, this alone ought to urge us to stop it.

Wisconsin and Iowa Going Forward

Mr. Frank C. Pellett writes us that a bill appropriating $1500 for bee inspection has passed both houses of the Iowa Legislature. The State Fair Association has also made a move forward by raising the amount of premiums on hive products 40 percent for the coming fair.

Mr. N. E. France writes that a new Wisconsin foul brood law has also been enacted. This places an annual sum of $2000 at the disposal of the State Inspector, who may appoint deputies. His salary is not to exceed $5 per day when actually engaged in inspection work.

The above-named gentlemen are understood by us to be inspectors for those States.

Moisture in Nectar

The statement made on page 92, that when first gathered nectar rarely contains more than 25 percent of moisture, and usually much less, is considered by some of our readers as incorrect. There appears to be more difference of opinion on this subject than on almost any other upon which the average bee-keeper cannot make a positive test. The United States pure food laws allow that amount of water in pure honey, and nectar in this and other countries is often found to contain 75 percent of moisture.

However, let us take notice that the amount of water in nectar depends, not only upon the kind of bloom from which this nectar is gathered, but upon the soil, the amount of moisture in the ground, and the hygrometric condition of the atmosphere at the time. Some scientific apiarists of the European continent, of the kind which one of our contemporaries calls "apiculteurs en chambre" (theoretical apiarists), have tried to give an exact figure as to the proportion of water in nectar. They might as well try to give an exact figure as to the proportion of water in the milk of cows. Our clover and basswood nectars contain very large amounts of water. Fall flowers contain less. Some of the crops of heather in Europe produce nectar so thick that it is extracted with difficulty. Perhaps, Mr. Isaac Hopkins, who wrote the statement criticized, lives in a very dry climate. This might explain his statement. It is safe to say, however, that in the majority of instances, honey freshly harvested contains much more than 25 percent of water. But to give a definite quantity as an average is an impossibility.

Here is a question on which we would like an answer: We are told that there is a considerable difference in the amount of water contained in different samples of nectar, and we know that some honeys are much thicker than others. Now is there any definite relation between the water in nectar in any particular case and the water in the honey derived from that same nectar? If A's bees gather nectar containing 20 percent more water than is contained in nectar gathered by B's bees, then will A's honey contain 20 percent more water than B's honey? Or, supposing white clover in each case, will evaporation continue until the honey is of the same density in each case?

Young Queens Destroying Queen Cells

In L'Apicoltore Moderno, Miss Fleischman criticises the statement made by J. Anderson in the British Bee Journal, that young queens, newly born, destroy other queen-cells. She has never seen this take place, although she has often watched them. We can, however, vouch for the correctness of Mr. Anderson's assertion. Youn queens which have been confined to their cells by the bees are very lively, and when freed are exceedingly eager to destroy other queen-cells.

Be True

It never pays to misrepresent. If we are found in a misstatement of facts or a gilding of our goods by putting our best in sight and hiding the poorest behind, we are sure to be found out and to lose the good opinion of others as well as our own self-respect, which suffers even when our falsehood prevails.

The advertiser should place his offers in as good a light as possible, but he should "stick to the truth." The average bee-keeper does not seek "gold bricks." Fakes are usually distasteful to him. Straight goods and straight talk are what he wants and what he should give. We will all be the better for it.

What Should a Beginner Buy?

This question is asked by a novice in bee-culture.

We have always considered it possible and advisable to begin bee-culture on a very small scale. Perhaps it was because we began it with exceedingly limited means; perhaps also because at that time most of the modern implements had not yet been invented.

The most important and most valuable part of the outfit is the colony of bees. One ought to have two if possible, because if an accident happens to a single colony, one might experience failure and become permanently discouraged.

The novice should, therefore, begin with not less than two colonies, Italian bees, in good, movable-frame hives. The quality is important. In addition to those, the only indispensable articles are: a veil, a bee-smoker, a hive-tool, some good beginner's book, and two or more empty hives, with an extra super for each and comb foundation. The quality of the articles aside from the hives and the bees, is of little moment. When the apiarist gets a little farther along, he will get better ones. The extractor, honey-knife, bee-escape, etc., will be needed later. If the man makes mistakes at first, as we all do, he will feel thankful that he has not been induced to invest largely. If he succeeds, as he will sooner or later if he perseveres, he will soon learn what he needs. Let the bees pay for it. The elder Dadant often [illegible] after the first bees were secured by him, I never spent anything for them, in cash,

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that was not already paid for by the bees in honey. Of course the labor was not reckoned in this because it was not a cash expense.

Glucose Again

A correspondent, in a friendly criticism, takes exception to our statement that glucose would be injurious to queens, in the candy for mailing cages. He says he has tried a small proportion, and that the queens did not suffer.

As the only advantage to be derived which is claimed by the supporters of this method is the greater softness of the candy, it is very clear that as long as we can make a sufficiently soft candy out of pure sugar, or sugar and good honey, this advantage is more fanciful than real. As to the cheapness of the article, it is well known that glucose does not contain half as much saccharine substance as honey does. At half the price it would be too dear. This has been proven in the making of grape clarets. The Concord grape does not contain sufficient sugar to make a lasting claret, and vintners use sugar added to the grape juice. Glucose was tried, because less expensive than good sugar, but it took twice as much to secure the same result, although some chemists who were evidently paid to make a favorable report, asserted that the glucose produced more alcohol than sugar.

Let us have only the best sugar and honey as feed, and we will have no cause for regret.

A Trip to Europe

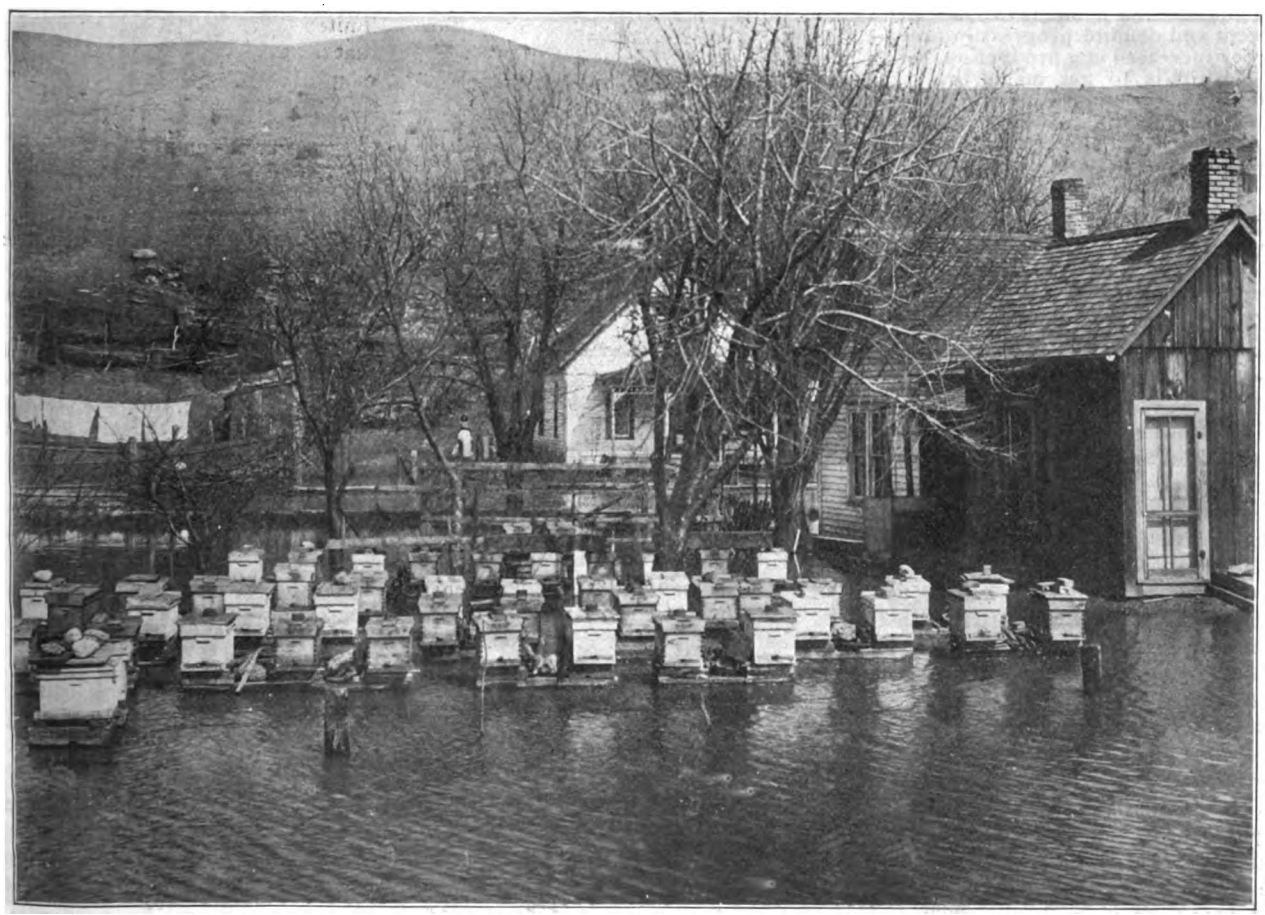
Mr. and Mrs. C. P. Dadant will start for Europe at the end of this month, or as soon as the usual spring rush of activity lessens. This will not be altogether a pleasure trip. Mr. Dadant proposes to examine for himself the local differences in quality of the bees of Switzerland, Italy and Carniola. For years the Swiss bee-keepers have asserted that they find the Italian bees inferior to their own Swiss bees. It has also been asserted that the bees of Italy differ in different localities. These matters are worthy of investigation, especially at a time when the Italian bee is so much in the lime-light, owing to its greater immunity from European foul brood. Being acquainted on both continents, our editor will have great facilities to do this.

Communications to the American Bee Journal will be cared for in his absence by M. G. Dadant, the Manager. Urgent letters for C. P. Dadant himself should be addressed to him as follows: For July, in care of R. Gariel, 2 Ter, Quai de la Mégisserie, Paris; for August, in care of E. Bertrand, Nyon, Switzerland; for early September, in care of L'Apicoltore, 18 Via Cappuccio, Milan, Italy.

Breeding for Eggs

The Practical Farmer discourses upon a plan for getting an increased number of eggs from hens, and characterizes it as "the most important new wrinkle that has been brought out for a long time. Here's the "wrinkle:"

Now and then a hen is found that will lay 250 eggs, and perhaps upwards, per year. We are likely to raise all the pullets we can get from her eggs, in the expectation that she will transmit her unusually great laying qualities to her daughters. In practice it is found that the pullets raised from her eggs may be quite indifferent, or at least very common layers. The



MR. FRANK HINDERER CAME VERY NEAR LOSING HIS BEES WHEN THE ILLINOIS RIVER OVERFLOWED THIS SPRING.

American Bee Journal

female parent, in determining the laying qualities of a pullet, is not the only, and not even the dominant factor. The male parent seems to play the important and really decisive role. This has been brought out as a new fact by the most thorough and scientific investigations made by the Maine Experiment Station (a station that has done so much for the poultry keeper). In regard to the influence of good roosters, Dr. Raymond Pearl, of that station, says in Farm and Fireside: "How does a hen ever get to be high layer if she cannot inherit this quality from her mother? The answer is simple: The high-laying hen gets the excess-production factor, which is necessary to make it a great producer, from its sire.

"Here, too, is evidently the clue to the riddle which has puzzled so many who have trap-nested their flocks, when they find that some high-producing hens have good laying daughters, while other equally high producers have daughters that are poor layers. It all turns on the male used as the sire. Depending upon the hereditary constitution of the males used, it is to be expected that different proportions varying all the way from 100 percent to none, of the daughters of a high-producing hen will be themselves high producers. This is proved by experiments extending over a period of years, and involving a large number of birds. These results demonstrate the importance of getting the proper kind of males with respect to their hereditary constitution if one is to make permanent and definite progress in breeding for increased egg production.

"The aim is to get males that are 'pure-bred' in regard to the excess production factor. These can only come from high producing mothers bred with certain types of males. It is of the utmost importance in any scheme of breeding for production to select high-laying females, but it is not, as has been generally supposed, because their daughters will be good layers—this may or may not be the case—but rather because only from such mothers can males be obtained which will ultimately transmit to their daughters those qualities of high productiveness which are the goal sought."

No, the American Bee Journal has no notion of starting a poultry department, and the foregoing is not given with any such purpose in view. It is given because of its direct bearing upon the business of bee-keeping, and because it is believed that the importance of having the best of sires is just as imperative among bees as it is among fowls.

Thousands of queens are bought and introduced yearly for the sake of improvement in stock, but of all the bee-keepers who thus try to get better mothers for their bees, it is doubtful if 10 percent pay any attention to the sires, if indeed the number reaches one percent.

At once the reply will be made, "Oh, you can do nothing to control the mating of the queens." True, you can do nothing directly; indirectly you can do a great deal, especially in an apiary of any considerable size. While it is true that the queen must be left to chance, each bee-keeper should do what he can to increase his chances. Suppose in an apiary of 100 colonies 10 are of choice stock, and that no attention is paid to the drones. A young queen, upon her bridal trip, will stand one chance in 10 of meeting a choice drone. Suppose, however, that the bee-keeper keeps down all drones except in the 10 choice colonies, either by trapping, by shaving the heads off of drone-brood, or by allowing no drone-comb in the hives. In that case a young queen will have 10 chances in 10 of meeting a choice drone. In other words, she has 10 times as good a chance as when no attention is paid to the drones.

Of course, drones from neighboring colonies may interfere very materially, but if the bee-keeper persists year after year in improving his own stock, his choice drones will constantly be meeting young queens from those neighboring colonies, making a gradual but constant improvement in surrounding stock.

It is pretty safe to venture the assertion that if bee-keepers of this country would take as much pains with their drones as they do with their queens, it would result in a million pounds increase in the amount of honey annually harvested. Like enough that is stating it mildly. C. C. M.

Now as to trapping drones, shaving off their heads when in capped brood, or allowing no drone comb, the choice between the three should be with the last method. Trapping drones is a nuisance at best. Shaving their heads is a dirty job. In both cases we have been to the expense of all that nursing and feeding which might have been bestowed upon worker-brood. Allowing no drone-comb, or only such as will rear a few hundred instead of the thousands which are generally bred, is the proper thing to do. But do not rely on simply removing the drone-comb. You must also replace it with worker-comb at once. Setting aside a few dry combs containing both worker and drone cells, you should use such parts of those combs as contain worker-cells, to fill the open spaces made by removing drone-combs from the brood-frames. This may be done at any time, but just before the harvest is the easiest time. If we wait until the combs are full of honey or the heat too great, it becomes an unpleasant job. C. P. D.

VIEW OF THE FLOOD AT CINCINNATI—NOTICE THE BIG HONEY SIGN OF THE MUTH CO.

Texas Inspection Law

The Texas State Entomologist, Mr. Wilmon Newell, writes us that in the passage of the inspection law, the emergency clause was stricken out, so that no inspection can be made before July in that State.

Swarming

If you would avoid excessive swarming remember the following points:

1. Have the hives well sheltered from the sun if possible from morning until night.

2. Give plenty of ventilation. Bees

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should never cluster on the outside during a honey crop. They are either too crowded, too warm, or too little ventilated. It is sometimes well to raise the hive an inch or two from the bottom-board, especially in front.

3. Drones cause the bees annoyance by their bulk and their noise. Keep the drone-combs replaced by worker-combs wherever it is practicable to change them.

4. Have young queens. They lay less drone-eggs, and the bees are less apt to supersede them. When bees are rearing young queens to supersede the old mother, she is likely to swarm out and the bees will follow.

5. If you are raising extracted honey, keep a supply of empty combs ahead of need on the hive, if it takes three or four stories.

Veils and Gloves

The witty contribution in this issue on the above subject, by Mr. Bigelow, is intended for beginners. Very few practical apiarists use gloves at all, but we all recognize the need of a veil at hand for accidentally irritated colonies. We give our preference to the veil which is most readily put on or taken off, even if a little less safe than the well-fastened veil. Each one should decide this point for himself.

Do It In June

Keep the grass cut away from the front of the hives. Shade them from the hot sun. Do not allow the bees to cluster in front for want of ventilation or for want of room. If they hang out, raise the hive from its bottom, in front.

See that your colonies have enough room to store honey, when the yield is on. To coax an average colony into the empty super nothing is better than a few half sealed sections exchanged from a very active colony, and the latter won't miss them.

MISCELLANEOUS NEWS ITEMS

Dampening Sections by Means of a Wet Cloth.—If the sections make a creaking noise when being folded, it is a sign that they are too dry and need to be dampened.

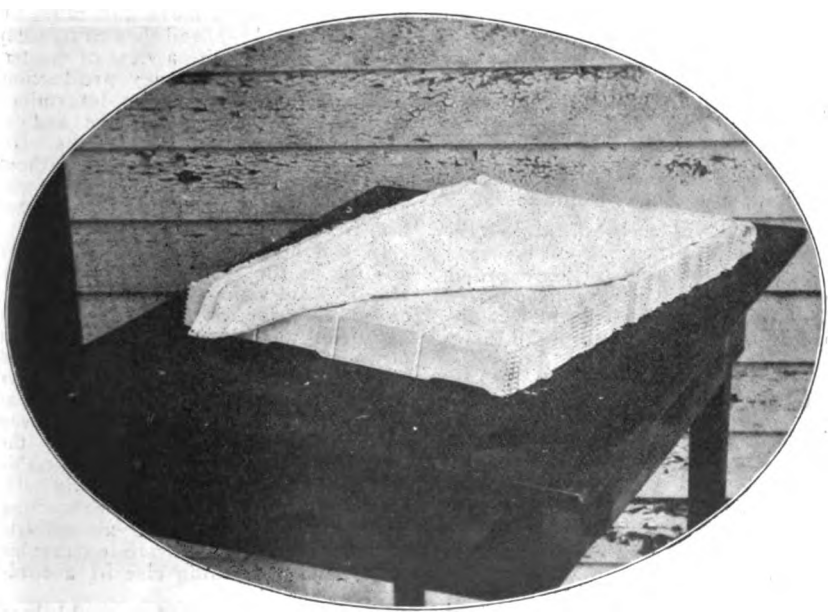
To dampen sections, take the sections out of the crate and lay them on edge on a table; take a white cloth (towel), soak it in water, wring out some of the water, leaving it very moist, and spread it over the sections, covering the three rows of V grooves as shown in the illustration.

Leave the sections covered in this manner until they are sufficiently dampened for folding.

Ordinarily the time required is only one hour. If the sections are very dry it may be necessary to soak the cloth twice or to apply it double.

The moisture, as it leaves the cloth, settles down into the V grooves just where it is wanted. This leaves the sections dry except the V grooves, and therefore the sections will not warp, nor will the dovetailing fit together too tight, as it usually does when the whole sections are dampened.

A good way to dampen sections in a hurry, is to lay them out flat on a table and then apply water in the V grooves with a small brush. Many sections should be laid out, side by side, at one time, having the V grooves in straight lines. To prevent the sections from getting wet from the drip, lay them on slats. Sections will answer this purpose.—GEO. A. BOYUM.



DAMPENING SECTIONS.

Reinforcing Foundation.—B. Brewster, in the Canadian Bee Journal, page 48, speaks in high terms of his success in reinforcing foundation by painting melted wax over the surface with a flat 3-inch varnish brush. He does not merely paint over the upper part of the foundation (which secures against sagging), but paints over the whole of one side, the side upon which the wires are, thus fastening in the wires and reinforcing the foundation at one operation.

Last season gave the plan a severe test. Frames of foundation prepared as described were given at a time when bees were idle from dearth, and instead of chewing down the foundation as happens too often, the bees made good work, so far as they did anything, making beautiful combs of those that were fully occupied. A peculiar feature of the case was that "in nearly every case, 4 or 5 days after hiving, comb had been drawn out in every frame on the side that was painted, whilst little had been done where they had the 'Weed process' to work at."

The Demand for Beeswax.—L'Apiculteur for January publishes a statement from J. De Hasque, of the Antwerp Commercial Counting House, who mentions the growing importation of beeswax into civilized countries from new regions, such as India, Abyssinia, Eastern Africa. He remarks that these comparatively new sources, joined to the modern discovery of paraffine and vegetable waxes which are now used in place of beeswax for many commercial purposes, ought to have lessened the price of beeswax.

On the contrary, the value of pure beeswax is now greater than ever. He ascribes it correctly to the increase of the movable-frame system of bee-culture, in which a minimum of beeswax is produced.

Not long ago, assertions were made that there would be profit in producing wax instead of honey. There will be plenty of room in the future for those who hold this view to try it themselves, for beeswax is more and more in demand, and there is no probability of a

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lower value. The active apiarist continues to reduce his production and increase his purchases of this article. This is natural, for success is in that direction.

Water in Honey.—Nectar contains 70 to 80 percent of water, and honey 18 to 25 percent. (In this country 25 percent of water is allowed in honey; in Germany only 22 percent.) Naturally, when bees are storing, there will be more water in the combs at the end of a day's work than there will be the next morning. So Ed. Knoke advises against taking off honey for extracting late in the day (Bienenwirtschaftliches Centralblatt, page 9), unless at a time when bees have not been gathering.

Alfalfa in Iowa.—"The Southwest Trail," Room 736, La Salle Station, Chicago, Ill., publishes a May number devoted entirely to the above-named subject. It is very interesting. The editor, V. L. Schoeffelmayer, well known to us for his energy and enterprise, offers this number, for the asking, to any one who will send his address.

Bees Need Enormous Amounts of Air.—In Bienen-Vater, page 61, are given some very interesting figures from Dr. Zander. At a temperature of 68 degrees Fahr., if we take as a standard the amount of air a man needs to breathe, in a given time, a number of frogs weighing as much as the man will need one-third as much air.

Lizards need 43 percent as much.

Dogs nearly 4 times as much.

Flies 21 times as much.

Bees 74 times as much.

Franz Richter, who reports this, figures out that a colony weighing 13 pounds will need, to support it one hour, the enormous quantity of 17½ cubic feet of air.

Let us figure a little farther, and suppose this 13-pound colony to be lodged in a 2-story 10-frame hive. Roughly figuring, these two stories will contain about 3½ cubic feet. After deducting the room occupied by frames, combs and bees, hardly half the room will be left for air; but call it that, 1¾ cubic feet. To supply the colony with 17½ cubic feet of air in an hour, the hive will have to be entirely emptied and filled ten times, or 240 times for each day. That would mean a pretty lively flow of air at the entrance, especially if that entrance should be, like some, less than half an inch deep.

To get another view of the lively breathing of bees, suppose a man weighing 150 pounds uses up as much air as 150 pounds of bees. Seal him up in a room 25 feet long, 20 feet wide, and 9½ feet high, and in 24 hours he will be dead from suffocation.

Note, however, that all this is at a temperature of 20 degrees centigrade, or 68 Fahr. Let the temperature be 45 or 50 degrees, or whatever that point is at which bees are almost nearly dormant, and the likelihood is that the bees can get along with less air than the man.

Iowa Appropriation.—The following letter from the Iowa inspector, Frank C. Pellett, of Atlantic, explains itself:

Our appropriation is all right, and I must get busy. I met France and Kildow at Clinton last week to plan some way of dealing with foul brood where it exists on both sides of the river, as it now does adjoining both States.

Possibly no summer meeting of Iowa bee-keepers will be held, as they are very busy, and it is hard to arrange a meeting entirely by correspondence. I will be glad to inform you as soon as the matter is entirely disposed of.

Because one member of the Iowa association is having trouble from jealous persons poisoning and trapping his bees, the board has decided to employ an attorney to give free legal advice to members. We have accordingly selected Russell E. Ostrus, of Des Moines, who comes of a family of bee-keepers, and is in sympathy with the business as well as a good lawyer. We are not promising to pay expenses of litigation, although the association might vote to pay a part in a worthy case. I will be glad if you will call attention to this matter in your Journal.

Should Box-Hives Be Abolished?—As our readers already probably know, the foul brood laws of Australia prohibit the keeping of box-hives. There has been some opposition to this part of the law from unprogressive bee-keepers of the country, who claim that the box-hive is not a detriment. Mr. R. Beuhne, in an article in the Australasian Bee-Keeper, strikes right to the point, arguing in favor of the present law. We quote him as follows:

What good will the abolition of the box-hive do? Will it prevent disease? So far as this State is concerned, where the box-hive has disappeared foul brood has either completely disappeared also or has become an insignificant factor.

Never mind the bee-trees. I, for one, am willing to start and successfully run an apiary in any suitable locality and clean it of disease, too, in a few years, no matter how many bee-trees there are, so long as there are no box-hives to re-stock the trees with swarms and re-infect the wild bees by means of mashed diseased combs hung up in bags to drain, or thrown out for the bees from several square miles of country. A bee-tree, if left alone, is comparatively harmless; quite so when it is healthy. Even if the bees succumb to disease, it is not stirred up with a stick and scattered about; and in many instances mice, ants, and wax-moths reduce it to debris unattractive to bees before the latter find it. If some apiarist's bees do find it, it will be robbed out dry, and the apiarist will clean up the disease in his own hives. If he knows of suspicious trees he can plug up the entrance, clay it over, or nail wire-screen over the entrance, not to mention other methods, none of which he can apply to his neighbors' box-hives.

Dr. Miller on Honey Rules.—Glad to see Rauchfuss' article, page 163, but sorry he condemns the rules. It seems to me they are an effort in the right direction, there being at least something definite about them. But if Frank has something different that is better, by all means let him give it. He might also suggest rules for extracted honey. Would the Colorado rules be acceptable to the entire United States? Let us hear from him.

A Successful Iowa Bee-Keeper.—The high price of good land is causing many young men to look to the northwest or the south for an opportunity to begin life as their fathers did a half century ago. There are many now living in cities who look with longing eyes to the country, but for want of capital with which to engage in farming, feel that they must remain in an atmosphere that is uncongenial.

Such may find something of inspiration in the success of a well-known bee-keeper of Clarinda, who began the business without much capital, and as a side line in the beginning.

J. L. Strong was a carpenter and builder for many years, but becoming interested in bees, took up honey production in a small way to furnish honey for his table and profitable employment for his spare hours. As time went on, he found more and more interest in his bees, and began to study them in earnest, with a view of mastering the subject of honey production. As his apiary increased, he determined to give up his other business and devote his entire attention to bees. His friends tried to dissuade him without effect, for he was already a bee-keeper at heart, and nothing could prevent him from becoming so in fact.

In the beginning, he rented a house and lot in the outskirts of Clarinda. His bees did so well that he soon purchased the property, something that he had been unable to do in his former business. Mr. Strong has prospered since that time. Although there have been seasons when the honey crop has been short, other seasons have been sufficiently abundant to make up the shortage. He now has a comfortable home, has added other lots to his holdings, has built a modern extracting house and bee-cellar, has an electric power driven extractor to extract his honey, and everything else in accordance.

For a long series of years his bees have produced an average of 50 pounds

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of surplus honey per colony each year. In addition to his sales of honey, Mr. Strong rears thousands of fine Italian queens which are sent out to bee-keepers in every direction.

There is room for many such apiaries in Iowa. The young man who can see no other avenue open to him, may. if he is adapted to the work, soon have a business and a home of his own by beginning bee-keeping in a small way in connection with his present employment. A few bees can be kept almost anywhere, and can be increased as fast as the owner's ability or opportunity will permit.—*Greater Iowa.*

Attacked by Bees.—Very formidable is the concerted power of bees by the million. This is shown in the experience of a British expedition in Africa, for the party was attacked and routed, several of the pack donkeys being killed by bees.

The swarming foes were first encountered on a precipitous mountain, where they had doubtless dwelt and multiplied undisturbed for years, since the place was sacred to an evil spirit so dreaded by the tribesmen that they never ventured to visit it.

While resting in a shady spot the commanding officer and his party looked up to see a swarm of bees streaming in and out of a large crevice in the cliff. As the hole was close to one of the worst portions of the ascending ledge, strict silence was enjoined on all the men.

The Europeans in the party removed their boots in order to get a secure foothold, and the whole party crept quietly along the face of the precipice. But cautious though they were, there was sufficient noise to attract the attention of the suspicious bees. Soon an angry cloud swarmed out. A false step on the part of the men would have been fatal, but there was no time to think of their footing with the furious swarm at their heels.

Fortunately no one slipped, and the van of the expedition, scrambling frantically upward from their little enemies, safely reached the summit of the mountain, while those in the rear bolted downward in the opposite direction and awaited them below. But those on the mountain top had next to think of their return. Luckily for them, the domestic habits of bees are as orderly as their methods of harvesting and architecture, and the men had only to wait until after sunset, which is the bed hour of all bees, to slip quietly past unmolested, although the task to which such a delay reluctantly forced them, of descending dangerous crags and pathless slopes in the dark, was more perilous than pleasant.

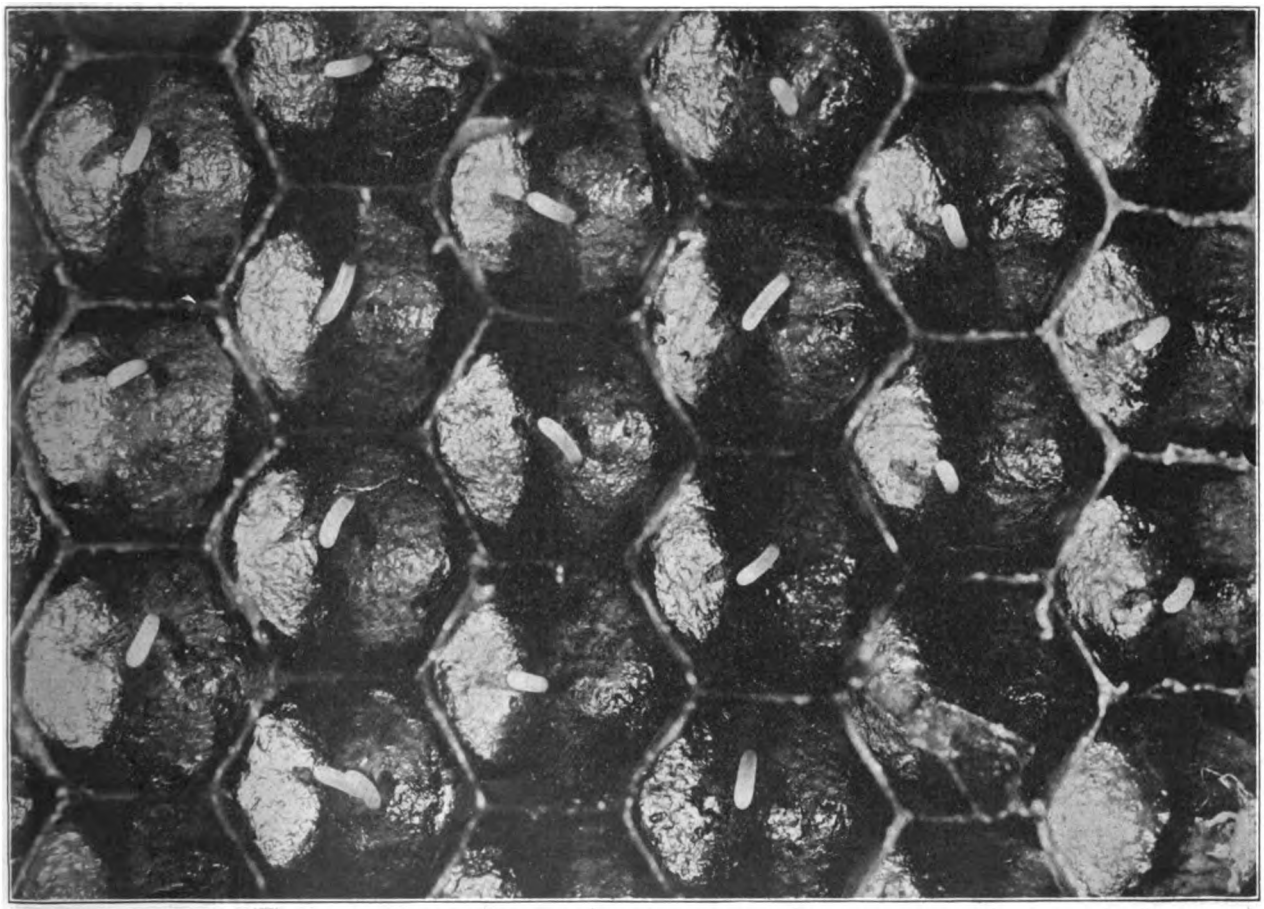
Far more tragic was an attack in a less dangerous spot, for in the sudden scattering of the caravan before the stinging hosts a sick man failed to make his escape, and was left behind. He was missed, and the commanding officer, with two natives, went back to search for him beneath the hollow tree where the bees had issued.

The party set to work quartering the ground near the tree. The bees swarmed down upon them, and it was impossible to avoid being stung. All the men could do was to keep the insects from their eyes. After a short time it became too hot for the rescue party, and they left. It was becoming too hot for the officer also, when he stumbled upon the native for whom they were searching, and picking him up he ran.

The unhappy man, who wore only a loin cloth, was frightfully stung. His body, owing to the innumerable stings left in it, instead of presenting a smooth surface of clear black skin, appeared to be covered with a close brown fur. He died in about 5 hours. —*Exchange.*

Propolis.—A new use of propolis is given by "Francois" in the Rucher Belge:

To fasten gold leaf in the decoration of walls, ceilings, mouldings, etc., they generally use a solution of gum-lac or fatty essence. This mixture has the inconvenience of not permitting the applying of the gold leaf until 24 hours after the mixture has been used. This inconvenience is great in the case of high ceilings, such as those of the Pal-



REMARKABLE PORTRAIT OF EGGS IN THE BOTTOMS OF CELLS.—(Photographed by Edward F. Bigelow.)

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ace of Justice of Liege, the moving of high scaffolds being difficult and expensive. Besides, the greater or less desiccation of the coating has an effect upon the brightness of the gold, and the tones secured are never uniform.

To remedy these inconveniences, after numerous trials, I have secured a propolis mixture which has given me entire satisfaction. This mixture dries immediately, and enables the gold leaf to be applied at once. Its composition is as follows:

One hundred and fifty grammes of propolis (one-third pound) with 500 grammes (one and one-ninth pounds) of methylic alcohol (wood alcohol) in a wide mouth vial. To hasten the liquefaction, shake the mixture once or twice daily. At the end of a week, filter through cotton wadding.

The stability of gold leaf on this mixture is astonishing, and the possibility of applying both at the same moment reduces the labor about 60 percent. The mixture does not cause the wood to swell or lose its polish.—*Les Abeilles et Les Fruits.*

Minnesota Appropriation for Apiculture.—Mr. P. J. Doll, president of the Minnesota State Bee-Keepers' Association, in a recent letter to this office, announces that the Legislature has enacted a bill providing for an appropriation of $3000 to be used for the purpose of establishing and maintaining an apiculture department at the Minnesota State University.

At a special meeting of the State Bee-Keepers' Association Dr. L. D. Leonard was recommended to the University authorities for the head of the department. Dr. Leonard has been an active member of the association and a bee-keeper for nearly 20 years. He is well educated, and excellently fitted for the position.

Shakespeare on Hives.—Among old papers we find the following from Mr. John Phin, the author of "Phin's Dictionary of Bee Terms :"

"Shakespeare uses the word hive six times—mostly as referring to the dwelling."

"Drones hive not with me."
—*Merch. of Venice, II. 5.*

I, after him, do after him wish too,
Since I nor wax nor honey can bring home,
I quickly were dissolved from my hive,
To give some laborers room.
—*All's Well, I. 2.*

When like the bee, tolling from ever flower
The virtuous sweets,
Our thighs packed with wax, our mouths with honey
We bring it to the hive, and like the bees
Are murdered for our pains.
—*2d K. Henry IV. IV. 4.*

So bees with smoke, and doves with noisome stench,
Are from their hives and houses driven away.
—*1st K. Henry VI. I. 5.*

The Commons like an angry hive of bees,
That want their leader, scatter up and down,
And care not who they sting in his revenge.
—*2d K. Henry VI. III. 2.*

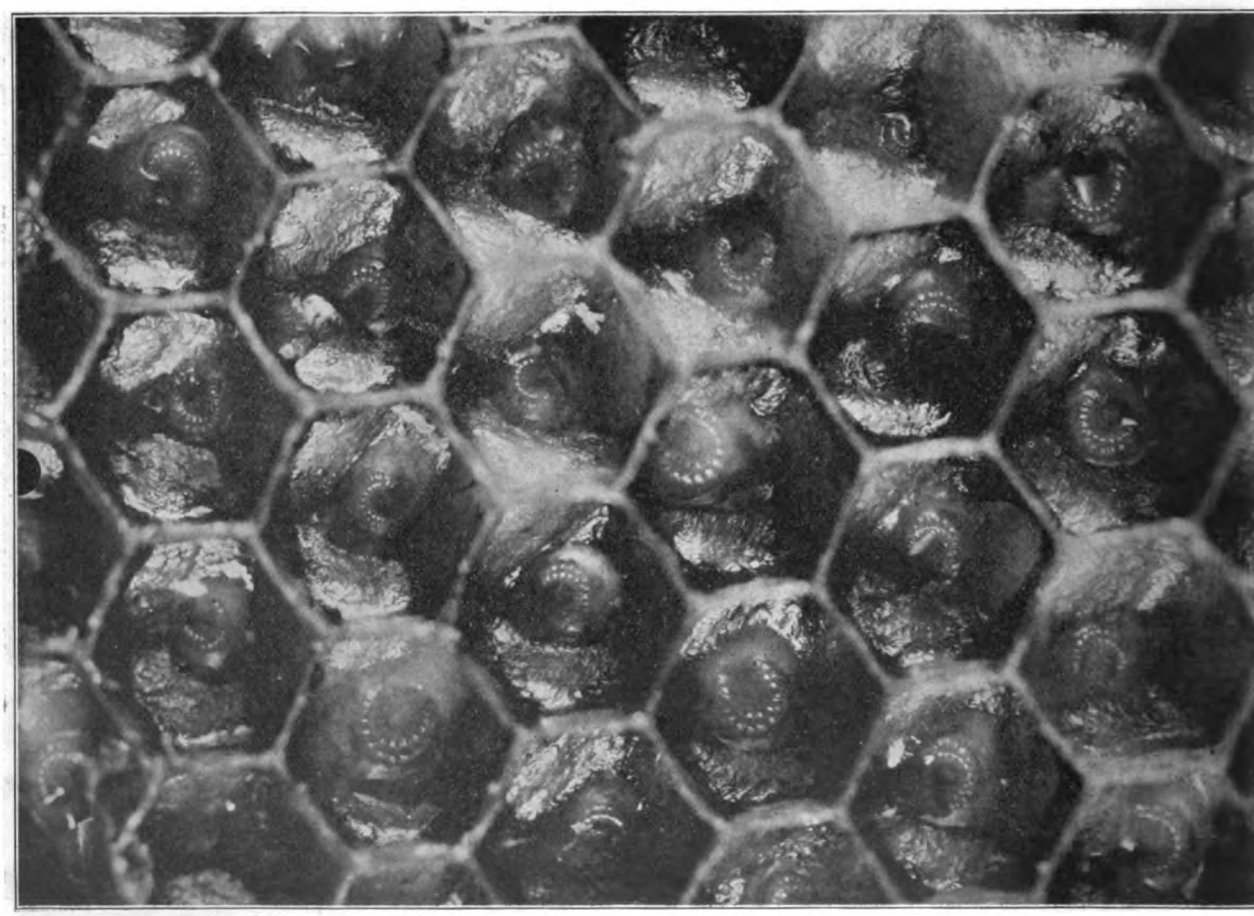
When that the general is not like the hive,
To whom the foragers shall all repair,
What honey is expected?
—*Troilus. I. 3.*

Here is another:—(ED.)

The old bees die, the young possess their hive.
—*Rape of Lucrece. 253d Stanza.*

Honey in the Butter.—We read the statement in L'Apicoltore Moderno, that in some hotels of England and Switzerland, they mix 6 percent of honey with the table butter. They say that it gives a peculiarly pleasant flavor to the butter, and keeps it from becoming rancid.

Inspection Appropriation for Illinois.—The appropriation committee of the Illinois Legislature reported favorably an appropriation of $2000 for Illinois inspection of apiaries. This is an increase of $500 over the previous appropriation. The faithful present inspector, A. L. Kildow, says that it did not take them more than "five min-



ENLARGED PHOTOGRAPH OF LARVÆ IN THE CELLS.—(Photographed by Edward F. Bigelow.)

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utes" to decide that the appropriation was needed.

The bulletin containing the inspector's second annual report, and a lot of useful information, can be had for the asking of either A. L. Kildow, inspector, of Putnam; Jas. A. Stone, State Secretary, Rt. 4, Springfield; or Louis C. Dadant, Secretary of the Chicago-Northwestern, of Hamilton.

With France in Wisconsin, Kildow in Illinois, and Pellett in Iowa, there ought to be some educational work performed among the bee-keepers of those three States this summer.

New Jersey Meeting.—A Field Meeting of the bee-keepers' association of New Jersey will be held on Wednesday, June 25, 1913, at the apiary of George Grover, near Trenton, N. J. We hope there will be a large attendance.

E. G. CARR, *Sec-Treas.*

BEE-KEEPING FOR WOMEN

Conducted by MISS EMMA M. WILSON, Marengo, Ill.

A Large Comb

This colony of bees was in a corner of a house-wall. There were five sheets of comb; one was solid from top to bottom, 16 inches wide and 101 inches long. We took out 50 pounds of honey and left about 30 pounds for the bees. This was on Dec. 10, 1910, at Soquel, Santa Cruz Co., Calif.

(MRS.) BERTHA ANTHONY.

Oxnard, Calif.

Is not this one of the largest combs on record? To realize the length of it, let it be recalled that the ceilings of many dwelling rooms are only 8 feet high, and this comb is 5 inches more than that.

For White Hands

It is the simplest thing in the world to make cosmetic gloves. All that is necessary is to make a pair of loose mittens out of woolen cloth and spread a good hand paste over the inside of them, after which cut off the mittens at the ends, as it will not do to exclude the air from the hands. An effective glove paste can be made thus: Put two ounces of yellow wax into a double boiler and heat until it dissolves, then add one ounce of powdered myrrh and beat thoroughly. Four ounces of honey should now be added to the mixture; finally, sufficient rose water is added to make a spreadable paste. This is quite the daintiest glove paste I know of.—*Chicago Record-Herald.*

Seven Swarms in One Hive

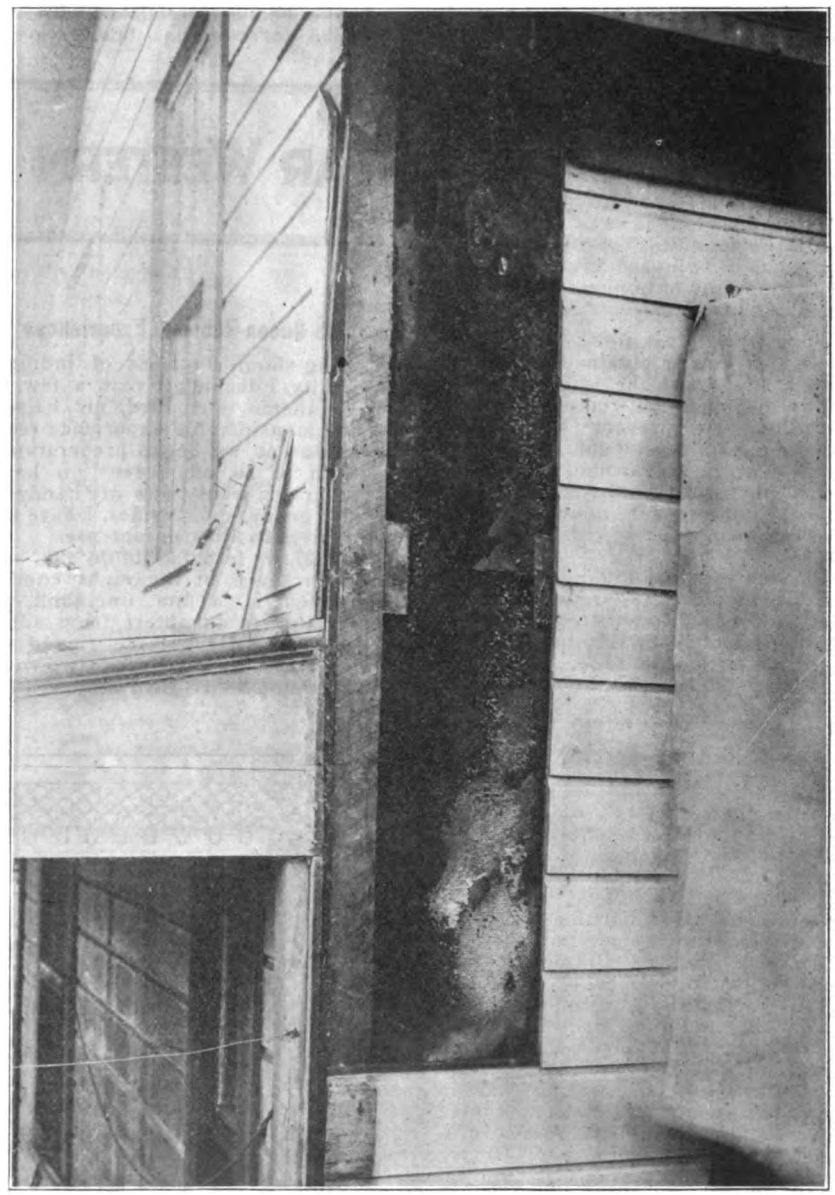
I want to tell you what I did with 8 swarms of bees that came out one day last August, when Mr. Banker had gone to town and I was alone with the bees. I was not very strong, but I could not see those bees go off if I could possibly help it, as they were all large swarms, so I got 7 hives and tiered them in one pile, hiving all the swarms together.

When my husband came home he said he never saw so many bees in a hive in his life. The next morning he went to look for combs. He got a lot of combs, extracted the honey from them, and when he went to shake the bees on the empty combs he found they had not killed the queens, as they had too much room. A large swarm went to the woods and the rest all took wing and settled on a plum tree. He carried 7 swarm-catchers full, and as he was tired of carrying bees he left the rest on the tree, but they all went to the hives through the day. I got 75 pounds of honey to spare, and left 40 pounds for winter. This is the most bees I ever hived in one day. We now have 150 colonies.

MRS. INA BANKER.

Sleepy Eye, Minn.

You certainly had a unique experience. Others have had trouble with swarms uniting, but you deliberately united them. To be sure, others have united swarms, but it is doubtful that any case has been before reported in which so many as 8 were united. It is interesting to know that the queens



A LONG COMB.

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were not killed, and this was no doubt due, as you suggest, to the fact that so large an amount of room was given. It would seem to show that when two or more united swarms have sufficient room they have a tendency to divide into separate swarms. Some have advised, when it was desired to separate united swarms, to put twigs in the hives for them to cluster upon separately.

Some Honey Recipes

I have learned several new uses for honey. When baking apples, instead of using sugar, I pour over them extracted honey, allowing one tablespoonful to each large apple. In making fruit salad, I also use honey for sweetening. I substitute honey for the sugar in any cake or pudding where the yolk of the egg is used, also in fruit pies and sauces. When making gems and muffins, I pour in about a teaspoonful of honey; it sweetens without making a coarse grain or gritty taste.—*Good Housekeeping Magazine.*

A Cure for Asthma.—In a medical work I find it recorded that a doctor ate some ounces of honey every day for two years, and got entirely free of his asthma. Before this he had tried every known cure without securing any relief.

Hygeia Dressing. — Yolks of two eggs beaten stiff, juice of one lemon, two large spoonfuls of olive oil, two-thirds cup of whipped cream and two large spoonfuls of honey. Add a slight pinch of salt.—*Household Magazine.*

Paste for Bleaching Arms.—Milk white arms can be obtained by coating them at night with the following paste and allowing it to remain on until morning. To prevent bed clothes from being soiled, it would be well to wrap your arms around with long strips of cotton cloth: Myrrh, one ounce; honey, four ounces; yellow beeswax, two ounces; rosewater, one ounce.

Melt the wax in a double boiler, then add the myrrh, powdered, while hot; beat thoroughly together, then stir in the honey and rosewater and sufficient glycerine, drop by drop, to make a spreadable paste.—*Chicago Record-Herald.*

A British Bee-Keeping Sistor

The British Bee Journal gives, from time to time, sketches of prominent bee-keepers, and in a late number the subject of the sketch is Miss M. Dagmar Sillar. The sketch opens by saying: "We believe this is the first occasion on which we have had the pleasure of presenting the portrait of a lady under the heading, "Prominent Bee-Keepers," and the subject of our sketch is well worthy of a place among them."

Born in London, of Scottish parentage, Miss Sillar first kept bees in North Wales, but her most valuable service to the cause of bee-keeping was in South Africa, where she was appointed poultry and bee expert at the Government Experimental Farm. A severe illness obliged her to return to England in 1912, after a very active South African career of eight years, and the likelihood is that British bee-keeping will profit by her activities hereafter, although Miss Sillar says of her African experience: "After all the hard work I wish I were going back to South Africa tomorrow."

Dandelions

In this part of the world it is counted that fruit-bloom has much to do with the honey harvest, not because a large amount of surplus honey is secured from fruit blossoms, for indeed no surplus is ever harvested from them here, but because they come at a time to do the most good in helping colonies to build up for the white-clover harvest. In late years, however, a strong competitor has grown up in the person of the dandelion. It is said to have made its first appearance here perhaps 70 years ago, when a lady brought the seed from the East because she thought it would seem more like home with dandelions about. Owners of lawns wish she had been satisfied with less homelike surroundings, but bee-keepers call her blessed. Even as late as 20 years ago dandelion nectar was a negligible quantity. Now it is abundant, increasing year by year.

In a certain sense, however, the dandelion can hardly be called a competitor of fruit-bloom. On this date, May 6, observation of thousands upon thousands of dandelion blossoms shows not a single bee upon them, while the bees are roaring upon the fruit-trees. Bees have their preferences, and while fruit-bloom is to be had dandelions are neglected. Only a few days ago bees were working busily on dandelions. But the nectar of fruit-blossoms was not on the market then. Like enough they will return to their first love a little later, when fruit-trees are out of bloom.

No doubt this explains, at least in some cases, why bee-keepers call a certain plant worthless for bees in one region, while in another region it is valued highly. In the region where it is neglected by the bees, it is neglected only because at the same time another plant is blooming which is a greater favorite with them.

Far Western Bee-Keeping

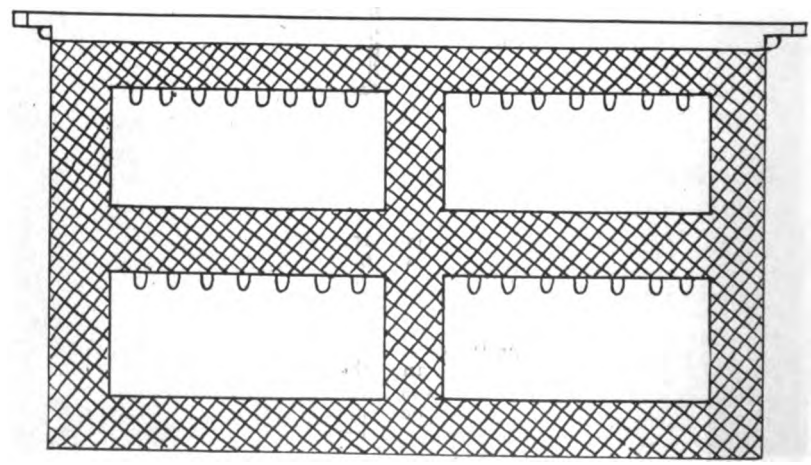
Conducted by Wesley Foster, Boulder, Colo.

Some Queen-Rearing Experiences

Having about 50 queens of indifferent quality, I decided to rear a few, to replace them. Mr. Bird, my helper, has had considerable experience rearing queens, so we began preparations. A dozen or so of queens on hand whenever you want them are handy in an emergency, and, besides, I have 150 empty hives to fill with increase.

April 27, we found a colony that had brood in seven of the eight combs. The queen is a fine one, and we thought to rear daughters from some of her young larvæ. We rigged up several frames with cell-cups (two rows to each frame). Mr. Bird molded a lot of cell-cups, *a la* Doolittle, and stuck them to the bars with a drop of wax. These cups looked lonesome to me without any comb in the frames, so I took a comb of several seasons' use, one that was tough and would not sag, and cut four holes in it like this:

Each aperture holds six cell-cups, and they are wide enough for the bees to build the cells down nice and long. We took the queen from the colony, I said, and two combs of brood and six nice drawn combs, and put them over a queen-excluding zinc. We grafted in the larvæ, no larger than the head of a pin, and put them in the center of the lower hive. Next day we looked in and all cups were torn down. So



A Frame Arranged for Queen-Rearing

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we took off the top hive with the queen, and placed it on another stand. Then we grafted another lot, put them in and also gave feed, sugar syrup that had been poured into a frame of comb. This started a little robbing, but in the evening of that day it turned cold, and the next day those cups were all torn down.

We next tried grafting cells into a queenless colony that was building cells, but they would have none of them. We are going to come back to our dequeened colony if the weather warms up and try again. Mr. Bird did the grafting. He selects some warm corner where the sun is shining brightly and no breeze stirs, and it seems warm enough to prevent the larvæ from becoming chilled.

We are going to keep at it until we succeed. It is possible that we have not fed enough, although the bees have been getting nectar from dandelion and fruit-bloom. Robbing is, however, attempted each afternoon, so that we shall feed regularly and try to get cells accepted. The changeable weather has been against us. We cannot rear queens during unfavorable weather. Although we have had no measure of success as yet, we are confident that we can rear queens when the right conditions are secured.

[The Doolittle method has often succeeded with the old queen in the upper story over an excluding-zinc. The weather is probably the cause of your ill success. It would be interesting to know how many of the extensive queen-breeders use the Doolittle artificial cell-cups.—EDITOR.]

The Efficienoy Hive

Bees are going to be moved more in the future than they have been in the past. Carload rates on bees will be reduced, probably as low as live-stock rates. We need such system of management and arrangements that a car of bees can be loaded in a day, including all preparations.

When hauling bees on an automobile or wagon we should be able to load them as snugly as brick. The cover should be of the same size as the top and the bottom. The bottom and cover should be interchangeable. This is a simplification that is worth while. The cover must be tin roofed with an air-space over the honey-board.

The cover-bottom I have here shown will require but a trifle over 3 feet of lumber. The tin for the 8-frame hive size can be cut from regular roofing tin sheets 20x28 inches, two pieces from each sheet. The ⅜-inch strips are nailed on top of the tin, and hold it in place on three sides. When it is used as a bottom-board the tin is up and the wax and propolis can be easily scraped from it.

This cover-bottom requires a hive stand, as it reaches just to the front of the hive, and does not provide for an alighting-board. But in a way this is an advantage, as every hive should be placed on some good platform or stand to protect it from dampness.

A honey-board, as used with the Acme cover, is necessary unless one uses a blanket. The use of cloths over frames and sections is out of date and cannot be tolerated by the progressive bee-man. [We still use them, and would not do without them.—EDITOR.]

Projecting hand-holds are not to be used with the hive, as they take up room and interfere with piling in compact piles. The hand-holes are sufficient.

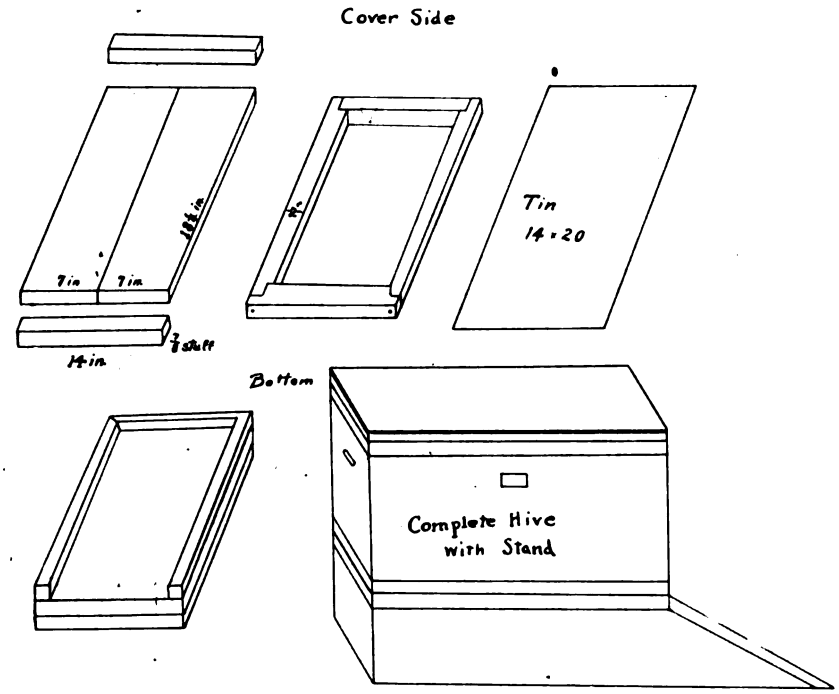
The advantages of this hive, using the standard dovetailed hive-body and frames, are that you save expense. It is the cheapest cover and bottom made. There is no waste lumber. When you want a cover, if a bottom is handy, you have a cover. The bane of the bee-man is complicated hive parts. I am trying to get this made so as to do away with the separate honey-board, and it will be practicable, I am sure.

The cover will be compact, and no projecting edges will catch the wind and blow off. Such a cover will hardly need a stone or brick.

The crack around the top edge of the hive can be seen, and robbing detected much sooner than when one has to get down and look under the cover to see whether bees are getting in. I can get these cover-bottoms, tin, nails, and all for an 8-frame hive for less than 20 cents each. Their cost, made from the best white pine, would probably not be over 25 cents.

There are 12 pieces in this cover-bottom, including the tin, and by a little better designing the number of pieces may be reduced to 10.

A shade-board might be necessary in some localities, and the lack of an alighting-board would be a very serious objection to some people. But the simplicity of the hive and parts appeals to me, and for those who do a great deal of moving it should prove of value.



WESLEY FOSTER'S COVER-BOTTOM.

SOUTHERN BEEDOM

Conducted by LOUIS H. SCHOLL, New Braunfels, Tex.

Increase and Out-Yards

Instead of making increase at an apiary and building up the nuclei with the intention of later moving the colonies up to a new place to establish an additional bee-yard, it is far better to do this all at one time. One of the greatest advantages is keeping the bees of the newly-made nuclei from returning to the parent colonies, and another is preventing the chance of these nuclei being robbed out, when left in the large apiary.

We use a shallow extracting super on all our colonies in the early spring for additional brood-rearing room and honey storage; this is also mentioned under the head of "Carniolan and Swarming," in this department. After these supers have served their purpose, and as soon as the bees of the colonies are well at work in the newly-given supers filled with foundation, which have been slipped in between the shallow-comb supers and the brood-nest on the coming of the honey-flow, the former are removed. Almost all of them will still have some brood in them which is sealed. Some will have

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a good deal while others may have very little or none. Therefore, it is advisable to change some of the combs so that all will have about an equal share of brood, as some nuclei might otherwise have too much brood to care for properly.

This done, these supers are set on as many new bottom-boards, a cover placed on each, the whole fastened together for moving, and the entrances closed with screen-wire entrance closers. A caged queen is given to each nucleus thus made. All are then loaded on a spring wagon and hauled to the new place, the entrances partly opened, and left alone for a week or more, according to the time the bee-keeper has to spare.

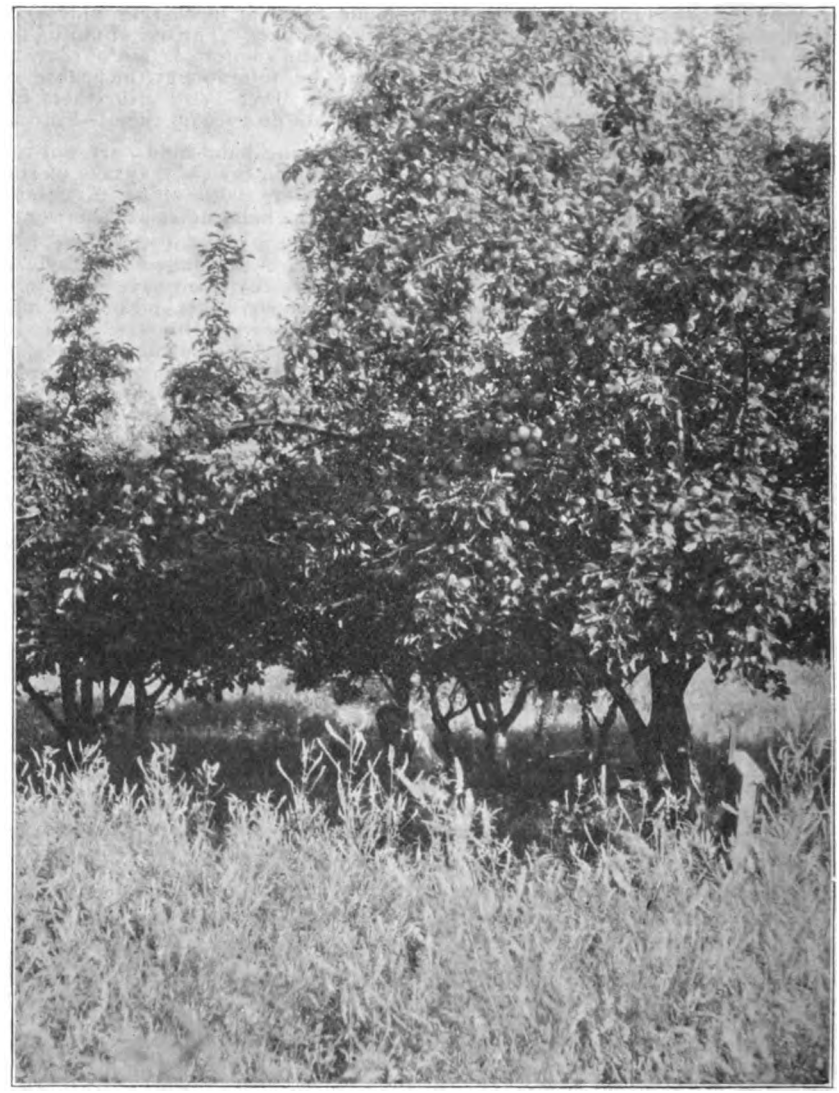
When these are nicely built up another super of combs is given, and you have that many divisible brood-chamber colonies in a new apiary.

"Do It With Hired Help"

That suggestion of friend Wesley Foster, in the May issue, is of greater importance than many bee-keepers can comprehend. There are too many bee-keepers who do most of their work themselves, when they could have it done much cheaper and just as well. The writer remembers when he started out to have more of the general work done by others while he attended to the business side of bee-keeping; toward its expansion and the improvement of the methods of doing things with a minimum of labor and expense, and a maximum of profits. Some bee-keepers doubted the advisability of such a venture. They seemed to think that it paid better to do the work themselves and hire only such help as was actually needed when the bee-keeper could handle it all alone.

Such a method of bee-keeping enables one to enlarge the business to a far greater and more profitable extent than if an attempt is made to do it alone. More apiaries can be maintained. The bee-keeper should consider himself the business manager of his concern, planning his operations with a view of expanding to larger proportions. He should study out systems of management that will enable him to employ assistants as he needs them in the management of the business. Of course, not all bee-keepers have the ability to do such things on a large scale, but many bee-keepers may start slowly at first, and, with a little effort and study, learn how to increase the operations so that in time the business may be a large one.

If you will study any well regulated concern you will find that there are managers whose duty it is to look after the details, who study these matters with a view of perfecting their business systems and methods so that the most profitable ends may be reached. It is the man who uses more brain and less brawn nowadays that will reach the highest success. A man can do just so much work and no more, consequently his goal is soon reached, in the expansion of his apiary business, if the work is done without assistance. Far better it is to have more of the work done by others.



SWEET CLOVER IS A GOOD COVER CROP IN THE ORCHARD; BUT DON'T LET ARSENICAL SPRAY FALL UPON THE BLOOMING CLOVER.

Carniolans and Swarming

We have tried Carniolans, and have found, after experimenting with them for a long time, that they are a valuable race, and that they can be kept from swarming as easily as any other race of bees with the proper management. The trait of excessive swarming has gone against this quiet, gentle race of profitable honey gatherers. Our experience has shown that they require larger hives than other races, and with the proper attention just before the danger of swarming, this trait becomes unnoticeable. The secret, therefore, is in having large hives and keeping them contented and busy.

We have since then adopted the same methods for all other races of bees, with the result that we have no trouble about swarming, although our apiaries number over 30 now.

It is no wonder to us that Carniolans swarm a good deal when kept in a single 8-frame Langstroth brood-chamber. Even a 10-frame Langstroth hive is too small for them. This is due to the prolificness of the queens, and as these breed up early, the above hives are soon crowded. These are exactly the conditions that mean the much-dreaded swarming, especially to the bee-keeper with out-yards.

We attempted to provide more room to the 10-frame hives by adding a shallow super of combs in early spring. This allowed additional breeding room besides furnishing storage room for honey that was gathered early in the spring beyond that used for brood-rearing. It also permitted the bees to move honey from the brood-combs below into these super combs. This left a less crowded condition of the brood-chamber, and the whole resulted in the production of rousing colonies of bees for the honey-flow.

There was still another trouble to overcome, however. As long as there was a chance for a congested brood-nest to develop, there was a likelihood of swarming. A colony of bees may swarm just as vehemently if clustered on the combs in an upper corner of a large dry-goods box, with plenty of empty space all about the colony, if the brood-nest is a solid mass of brood. The same condition existing in a smaller compartment would make mat-

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ters still worse. What becomes necessary at this very moment is to break up that solid brood-nest, and if this is done in such a way that the queen may find new room for her egg laying, there will be no swarming, but a contented colony that will develop into a a rousing honey-gathering colony. Such colonies are the ones that are desired by the bee-keeper.

Suggestions are offered for decreasing the swarming desire by giving, not only super room above, but also *below* the brood-chamber. While this may aid, it does not in seasons that are at all favorable to swarming. The reason for this is explained by comparison with a colony in a large dry-goods box, as mentioned above. As long as the brood-nest itself is left undisturbed the chances of swarming are just as great. Breaking up this solid mass of brood is the real secret, but it must be done before the swarming fever has developed. A colony already having the fever cannot be handled so easily. If it is too late, the best remedy is that of swarming the colony artificially by what has been known as "shook swarming."

CANADIAN BEEDOM

Conducted by J. L. Byer, Mt. Joy, Ontario.

North Carolina

The picture of the apiary of Mr. Joseph Robinson, of Paint Gap, N. C., is of interest to me not because I ever saw the original, but because my father spent some time with Mr. Robinson the past winter. At least half the bees are in boxes and log "gums," but Mr. Robinson is rapidly transferring all into 10-frame Langstroth hives. My father helped him while there in April. The great majority of bees in the mountain sections of North Carolina are still kept in "gums," but the most practical men are gradually discarding them for the modern movable-frame hives. Mr. Robinson is in the mountainous section of North Carolina, not far from Mt. Mitchell, which is the highest peak east of the Rockies, if I am correct. He sent me a walking stick cut from the top of a small spruce that was growing on the summit of Mt. Mitchell, and while I hope it will be a long while before I need it, it is needless to say I value it very highly as a souvenir.

Mr. Robinson keeps pure Italians, and every year imports some queens from Italy. He is alive to the folly of using "gums," as he says that with the frame hives he averages three times as much honey as from the others. It seems strange, this being the case, that thousands of colonies are still kept in the old style. Judging by what my father tells me, the mountainous section of North Carolina is a bee-keepers' paradise, with much nectar-bearing flora.

Among the plants that yield honey are white clover, basswood, sourwood, poplar, locust, chestnut, and many other trees and shrubs. Bad roads are a drawback. About the most serious obstacle to the country, according to father, and for the warning of timid ones, is the rattlesnake. Other varieties of the "breed" are fairly common, although very little damage is done by these.

The bee-keepers of North Carolina have a heritage well worth developing. With the splendid climatic conditions. bee-keeping should be a business of pleasure and profit. Much work of the North is needless there, bees wintering well on the summer stands. In the summer season it is not necessary to provide shade, as in the mountains they do not have such extreme heat.

While speaking of apiaries in North Carolina, I am reminded that my thanks are due Mr. E. L. Horton, of Democrat, N. C., for 5 pounds of splendid comb honey sent me, the quality of which will equal anything I have seen in the North, and that is saying a great deal. Mr. Horton says it was gathered from the locust, a statement that surprised me. Here, what little honey we get from the locust, is very dark and rank; which goes to show that "locality" cuts a big figure in more ways than one.

Moving—400 Colonies in One Place

I expect to leave home on May 14 and move the bees from the New Dublin yard, which is 200 miles east of my home, to a location 100 miles from my home where I already have 120 colonies. Nearly 400 colonies in one location will be an experiment, and while I suspect it may be too many, yet the location is above the ordinary, and we will try it for one year anyway. As to the moving, I am not expecting a picnic. With 250 colonies and about 500 supers and other supplies, all to be moved 3 miles to a railway and 200 miles by railroad—well, it means some work, sure, and I will not dwell on the subject now for fear of getting discouraged when I am primed ready to leave in a few days. I will report later how the trip pans out.

An Early Fruit Bloom

The early part of April was cold, then about the 20th winter took an abrupt jump into summer, rushing everything along at an abnormal rate. The unusual spectacle of wild plum and apple trees in bloom at the same time is seen here this year, and at this date, May 9, we fear that frost may come and kill all this abnormally early bloom. Clover looks well and bees are strong, but unless clover is as early as was all other spring bloom, there will be a long dearth between fruit-bloom and clover.

Location for Out-Apiaries

In establishing out-apiaries, it is not always possible to get just the location desired, and often one has to put up with some inconveniences that cannot be avoided. The picture shows a corner of one of my apiaries, so nicely situated that there is always a tempta-

Note the Box-hives on One Side—Modern Hives On the Other—Apiary of Joe Robinson, of North Carolina.

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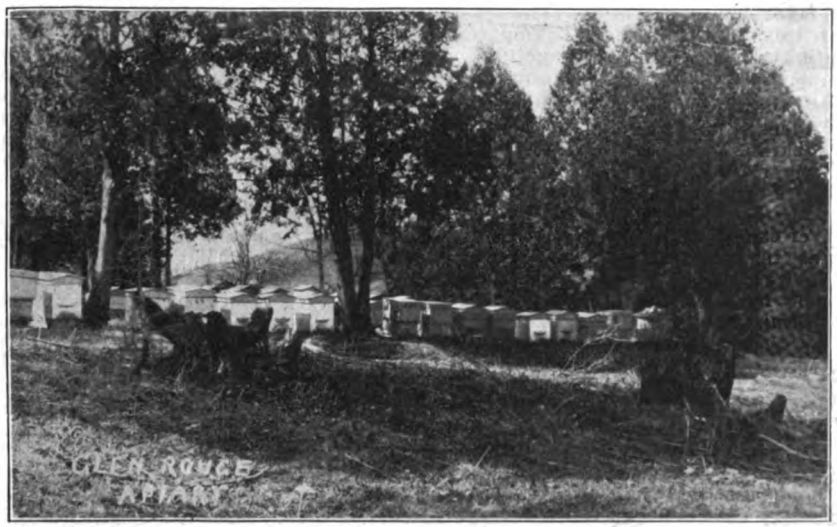
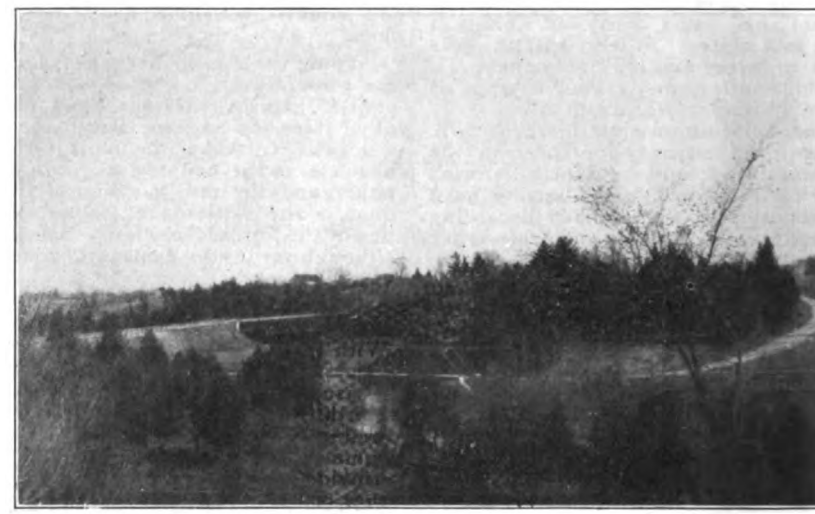


MR. BYER'S MARKHAM APIARY.

tion to lie down under the cedar trees on a hot day and enjoy the scenery instead of working. This apiary is situated in the town of Markham, but the location has no dwelling nearer than 250 yards, and trees are all around the yard. It is on a table-land about 80 feet above the valley and river. Behind this table-land the ground rises about 40 feet higher, so that the protection is splendid. About 30 feet to the left of the picture, a tiny stream trickles along, giving water for the bees, in a sheltered situation. The other picture shows the view looking south from the apiary, the two high bridges over the river being plainly in view.

This apiary always gives me the largest yield of all my bees, and the reason is not clear to me, as the other locations have much more clover around them. One factor that helps the yard, no doubt, is a large quantity of soft maples along the village streets just a short distance north of the yard. Shelter and water of easy access may also help some, especially the latter, as many colonies dwindle in early spring because of having to fly long distances for water on windy, chilly days.



LOOKING SOUTH FROM THE ABOVE APIARY.

BEE-KEEPING IN DIXIE

Conducted by J. J. WILDER, Cordele, Ga.

No Swarms

MR. WILDER:—What is the matter with our bees? We have had no swarms this season, and almost none for several seasons, or since we "Caucasianized" our apiaries. The hives are boiling over with bees, and they have filled all the supers we have.

Arabi, Ga. J. F. WILLIAMSON.

Like many other bee-keepers, you are losing heavily each season through lack of supers. You should have not less than three supers per colony.

In many cases the Caucasian bees have proved almost non-swarmers; too much so for the average bee-keeper who wants to make increase by natural swarming. Artificial swarming should be resorted to, and good methods for this will be found in most of our bee-publications.

The Caucasians are not inclined to swarm. This solves a great problem with the extensive bee-keeper, for he does not have to watch swarms in his different yards. It suits us far better to make increase artificially.

Too Much Swarming

MR. WILDER:—I had 7 colonies of bees in the early spring. They have swarmed twice each, and are still swarming. I fear I will not get any honey this year. My bees are the common black or brown bees. Should I get better stock? J. A. KING

Pitts, Ga.

The common race of bees has a few faults, and one is that they swarm too much. But little honey is produced in such seasons. This is not the worst of it. A lot of weak colonies will be on hand for winter, and winter losses will be large. You should watch them closely from now on, and feed and equalize stores as needed. As for better stock, I refer you to Mr. Williamson's letter in this department.

A Beginner's Questions

DEAR MR. WILDER: — Are honey-boards necessary when bees are run for chunk honey? When is the best time to transfer bees? How late in the season can bees be "robbed?" How can you keep worms from bees?

Milledgeville, Ga. A. S. BLANKS.

Honey-boards as queen-excluders can be used to some advantage where bees are run for chunk honey exclusively. But if some strained or extracted honey is desired, to pack with the comb honey or to use separately, they are not necessary, as the comb that is soiled from rearing young bees may be removed and the honey extracted.

From April 15 to May 15 is the best time to transfer in spring, and from Aug. 15 to Sept. 15 in the fall. There will be a good honey-flow at that time from cotton. Bees that are in modern hives can be "robbed" any time. Sealed honey can be found in the supers, as they store their honey there.

The best way to keep the bee-moth from destroying the comb is not to keep too much comb in weak colonies. Hive-bodies can be placed on strong colonies, and some of the frames of comb from the weaker ones set in them. These may be given back as the bees build up and need them. It is best to

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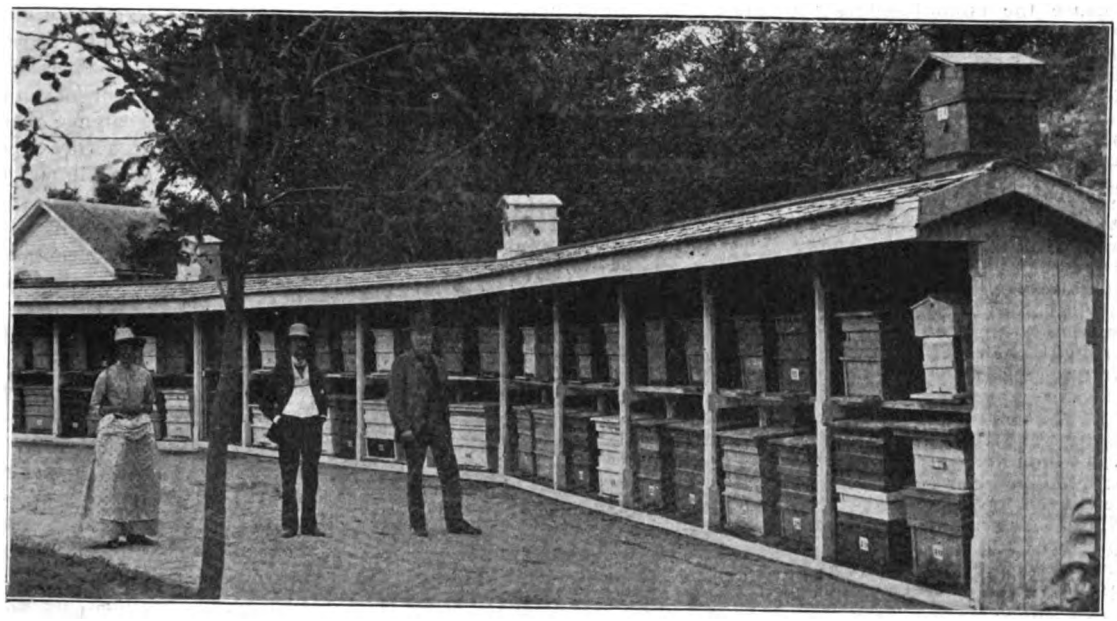

DECOY HIVES ON THE ROOF OF THE APIARY OF THE LATE WM. STOLLEY.

give them, instead of these, some combs of sealed brood, say one each week. They will soon be strong and will protect themselves from the moths, provided they have laying queens.

Do Bees Love or Hate Moths?

We keep a few empty hives at each apiary in readiness for natural swarms, and also for artificial swarms should we see fit to make them during our rounds. Never has a swarm taken possession of such a hive. But last season we had a number of swarms take possession of hives completely filled with bee-moths. The interior of the hives was lined with their cocoons, and on this account the hives were set apart from the rest of the apiary, and thought worthless. But the bees considered them good. This season we experienced the same thing, and we wonder whether the bees love or hate their foe, the moth. Or is it their instinct to go into quarters where they will have to spend considerable time cleanning up and getting ready for house-keeping?

[We suggest that the more or less conspicuous position of the empty hives has something to do with their adoption by the bees. The late Mr. Stolley, of Grand Island, Neb., a view of whose apiary is here reproduced, kept several empty hives, ready for swarms, on the roof of his bee-shed. He thus hived many stray swarms, and ascribed the success to the elevated and attractive position of the abode offered.

The strong smell emitted by a hive containing moths may also have attracted the attention of the scouts seeking a home.—EDITOR.]

A Great Season

So far this has been the greatest season we have ever experienced. This condition exists throughout Dixie. There has been a great increase made and a great harvest of honey well up to all expectations, and in most cases beyond. This means a great uplift for our industry. Naturally much optimism prevails.

CONTRIBUTED ARTICLES

Value of Combs in Sections

BY G. M. DOOLITTLE.

I HAVE SOME questions sent in with the request that I answer them in the American Bee Journal. The questions are as follows:

1. When a flow of nectar comes on gradually, which would be best to use in the sections, starters of foundation, full sheets of it, or sections partly or entirely filled with drawn comb?

At the beginning of a honey-flow the bees are not fully prepared to take care of the nectar that comes in except in empty cells which may remain unoccupied in the brood-chamber. The reason is that it takes 2 or 3 days of extra flow of nectar above what is needed for brood-rearing purposes, for the bees which build comb to use enough of this nectar for the secretion of wax to produce comb wherein to store surplus honey. Therefore, empty comb enables the bees to store honey sooner than could be done were there no empty cells in the sections or elsewhere in the hive. For this reason drawn comb, or at least a few sections of it put in the first super as "baits," are a decided advantage.

If I could have my choice, however, I should be glad to have all the sections in the first super filled with drawn, or partly drawn combs. I have known several seasons which proved to me that a super of partly-drawn comb given each colony at the start meant just one more super of finished honey. A colony given a super of combs would have them filled and started on a second super of sections by the time the colony given foundation had made a start.

This difference is more noticeable with the dark or leather-colored Italians than with the golden Italians, hybrids or blacks. The dark Italians cling to the brood-nest where a super has no drawn comb in it, until actually forced out of it. If a bee emerges, and the queen does not stand ready to put an egg in the cell, it is quite likely to be filled with honey. Give such a colony a super filled with drawn or partly-drawn combs, and the bees will store honey in the combs about as readily as in the combs below, until a sufficient supply and long enough time has elapsed for them to be compelled to secrete wax, build comb, or draw foundation in the sections.

Bees rarely work at drawing out

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foundation until sufficient honey is obtained to cause the comb-builders to secrete wax. Especially is this true with work done in the supers of sections. Hence, combs in the sections relieve the pressure upon the brood-nest. From this relief comes more brood, and this brood stimulates work in the sections and greater activity in the nectar-gathering field workers. It starts the bees to complete all partly-filled sections, or those having starters, or filled with foundation, or where only baits are used, thus bringing on a general storing above. Having made such a start, they are sure to continue it unless a sudden stoppage of the flow comes through a change in the weather.

Considering the value of drawn combs for this purpose, I have often wondered if some of us were not making a mistake in striving to have all sections, in which the bees had worked, fully completed at the end of the season; a few even going so far as to wish to "feed back" extracted honey for this purpose.

2. When the flow of nectar comes in with a rush, which of the three do you then consider the best?

From years of experience I know that there is no time in which drawn combs can be used to such good effect in this locality as at the rush that comes with the opening of the basswood harvest, when the bees that were one day almost living from "hand to mouth," came in the next day so loaded with nectar that they fell short of the hive before the sun was fairly shining in the tops of the trees. Under such circumstances nothing has been done by way of preparation for such a "downpour," and 3 or 4 days must elapse before sufficient wax can be secreted to build comb of any amount, or foundation be drawn so that this flood of nectar can be cared for. Here is where the workers for extracted honey, with their supers of ready combs, have the advantage over the comb-honey producers who depend only upon starters or full sheets of foundation in the sections.

The comb-honey producers could do nearly, if not quite, as well by the same means, having ready-drawn combs to store this first rush of nectar in without the delay of building new storehouses. Under such circumstances I once had a colony, fitted up for extracted honey, store 66 pounds in 3 days, while colonies quite as strong had only made a start in the section supers during the same time, further than filling the six sections given them as baits.

3. In using foundation in sections which is better, to fill the section full or to use only starters?

I began keeping bees several years before the advent of comb foundation, and we did not have comb of suitable whiteness to fill the honey-boxes. It was thought that starters of comb were good enough.

So when thin foundation for sections was proposed at $1.00 a pound, the most of us thought it too expensive to use more than a triangular piece, having a length of 2 inches on a side as a starter. But as the price lowered, most of our practical bee-keepers began to advocate full sheets, a little short at the bottom to save the "buckle" which often occurred in very hot weather by the sag or stretching when it was being drawn. It is best never to count the cost in producing a crop of honey except in connection with the profits. If, at the end of the season, the balance is on the right side of our book-keeping, it is best not to be afraid of the outlay. It always pays to spend money when the ledger shows that the more we spend the more we make. The question should be, "Will it pay?" instead of exclaiming, "It costs too much!" If it pays, use it. If its use is not attended with a profit, it should be left alone. Spend money, and spend it freely, when it will come back with a profit. If it doesn't, then it is folly to spend it.

Borodino, N. Y.

A Good California Law

BY A. J. COOK,

(State Commissioner of Horticulture.)

OUR LEGISLATURE has just passed, without any opposition, what I believe to be one of the best apiarian bills ever enacted by any State or country. The loss from black brood in California for the past year has been alarming, and as soon as the people of the State realized this, all opposition was drowned. This bill, which I enclose herein, appoints a commission consisting of the State Commisioner of Horticulture and the president and secretary of the bee-keepers' association of the State.

It is the duty of these gentlemen to appoint a State apiculturist, as those will see who read the bill. This man must be specially fitted to have charge of the work. This, I think, is a great point in favor of the bill. This apiculturist and the commissioners are to conduct examinations for inspectors, in order that no one will be appointed who has not passed an examination, and who is not well qualified for this important work.

In these bacterial diseases great caution and no little knowledge and training are required, else the disease may be scattered more than it is cured. Our law will now secure, by rigid examination, only fit men for this inspection work. Our horticultural law has this same good feature, and it has greatly improved the service of our horticultural inspectors. We expect the same of this new law. The State apiculturist, as he goes around, will instruct the several inspectors, giving advice and suggestions wherever needed.

Sacramento, Calif.

[The law in question is too lengthy (about 9 pages) for insertion in our columns. It creates a school of apiculture which every bee-inspector must attend for at least a week annually. The State apiarist, who is practically a chief inspector, receives a salary of $1800 per annum out of an appropriation of $5000, the balance of the amount being intended to defray expenses.

The State commissioners mentioned by Com. Cook in the above letter form a Board of Apicultural Examiners, who have power to recommend to the County Supervisors the appointment or suspension of any local inspector. They are to hold an annual meeting, without pay, for the examination of candidates for apiary inspection, and the date of their meeting is to be published in three bee journals. The compensation of apiary inspectors is fixed at $5.00 per diem and expenses.

Bees brought from another State, or from one county into another must be accompanied with a certificate of inspection, or must be examined at once upon their arrival.

If this law is properly enforced it should prove efficient. Its best feature, to our mind, is the educational part, which provides for a school of apiculture. Every one of our States will have to come to this.—EDITOR.]

Non-Swarming Strain of Bees, Swarm Control, Capturing a Swarm Under Difficulties, Etc.

BY G. C. GREINER.

WHENEVER the subject of breeding a non-swarming strain of bees has been spoken of in our bee-magazines, I have been wondering whether its advocates really meant what they said or whether they were really joking. I am not a scientist, but judging from a layman's standpoint, I would consider such a procedure an utter impossibility, being contrary to Nature's law. To succeed in that line, we would have to go back some 6000 years or more and countermand the All-wise Creator's command, installed at about that time, "Be fruitful and multiply." If this could be done it would have the same effect as to breed a strain of poultry that would lay unfertile eggs only; in either case it would mean the annihilation of the race.

The best we can do towards producing a non-swarming strain is to breed from some of our queens that show the least inclination to swarm. In this we may be successful in a measure, or we may not. For a generation or two we may have the satisfaction that these daughters inherit this much coveted

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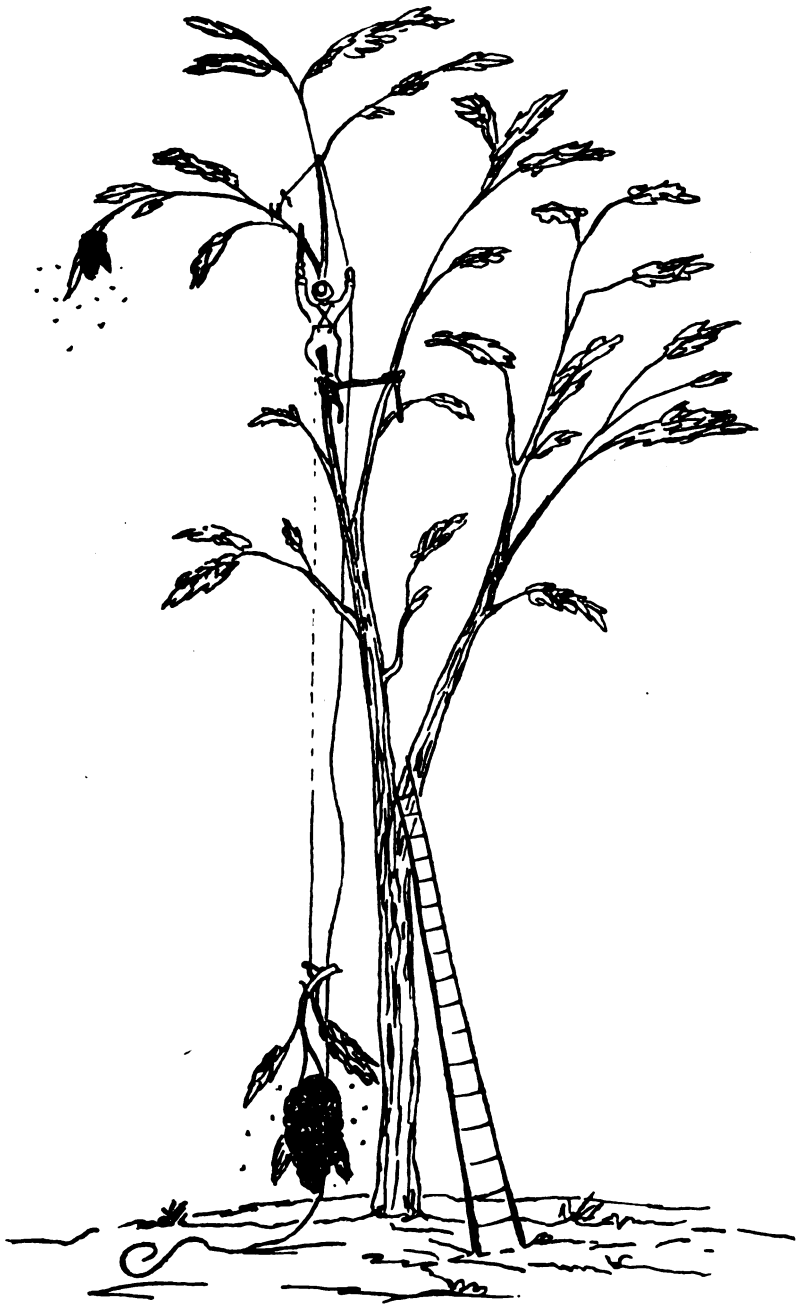

Fig 1.

FIG. 1.—LOWERING THE SWARM.

trait of their mothers. But there is nothing certain about it. They are likely to revert back to their more remote ancestors and swarm to beat the band. It all depends upon conditions which we cannot control.

Another way that gives us at least partially the benefit of a non-swarming strain is to control swarming by proper manipulation. I have just received Farmers' Bulletin No. 503; its subject is "Comb honey." To the comb-honey producer this bulletin is of special value; it would pay any bee-keeper, beginner as well as veteran of many years' experience, to send for a copy, if not already in possession of one. A fair portion of space is taken up in a comprehensive way with the subject of "Swarm Control by Manipulation." The various methods as practiced by our most advanced bee-keepers are given, and undoubtedly they are the most practical and in conformity with our knowledge up to the present time.

While the results of these manipulations may be very gratifying, there is one great drawback to nearly all of them. It takes too much time and labor to make them reasonably successful, and this at a time when the bee-keeper is bound hand and foot with driving apiary work. With the production of extracted honey it is very different. We can control swarming without any extra effort, and this is one of the great advantages derived from the production of honey in this form. If we keep close watch of all our colonies, make sure that they have empty combs at all times during a honey-flow, and this we must do to receive best results in the shape of surplus honey, we have, as a rule, practically no swarming.

As an additional safeguard against swarming, we should allow no old queens in the yard. In connection with supersedure, swarms are liable to issue, and as the introduction of young, vigorous queens is necessary to insure strong, healthy colonies we, at the same time, prevent so-called superseding by doing so.

During the last 10 or 12 years, the time I have practiced producing extracted honey almost exclusively, I have had less than 5 percent swarming under the management here outlined. I had prided myself on having mastered the swarming problem to a finish, but the past season surprised me in several ways. Contrary to all expectation, I can hardly give a plausible reason for it, from Aug. 21 to Sept. 4 about 30 percent of my bees cast swarms, some of them having young queens introduced in the spring.

It has been claimed that during a light but steady honey-flow, bees are more liable to swarm than during a heavy, rushing flow, or no flow at all. This last season seemed to prove this theory. From the first week of August until the end of October, we had just such a flow. Honey was coming in just fast enough to keep bees breeding, but none to store in supers, and, as a consequence, honey being used for brood-rearing as fast as gathered, hives were not as heavy with winter stores as usual.

The accompanying pencil drawing, Fig. 1, describes the feat of capturing a swarm under difficulties. When taking a general survey of the prevailing conditions, and trying to plan some feasible way of capturing the runaways, I was almost tempted, on account of the danger connected with the undertaking, to let them paddle their own canoe. But it happened to be the choice of my yard, the queen I intended to use as a breeder next year. Besides being uncommonly gentle and prolific, this swarm, one-half of a divided one, had given me 120 pounds of white clover, and between 50 and 60 pounds of dark honey during the season—all in all a very desirable acquisition to any yard, and worth the attempt to secure them.

When climbing the tree I found that the branch on which the swarm had clustered was too frail to support a person unless some re-enforcement could be made available. The rope, connecting the two main branches, answered this purpose, and at the same time furnished a support for the operator to stand on. From the drawing it will be seen that when the limb was cut with the left hand, the right hand had to manipulate the hook and line in such a way that the swarm reached its per-

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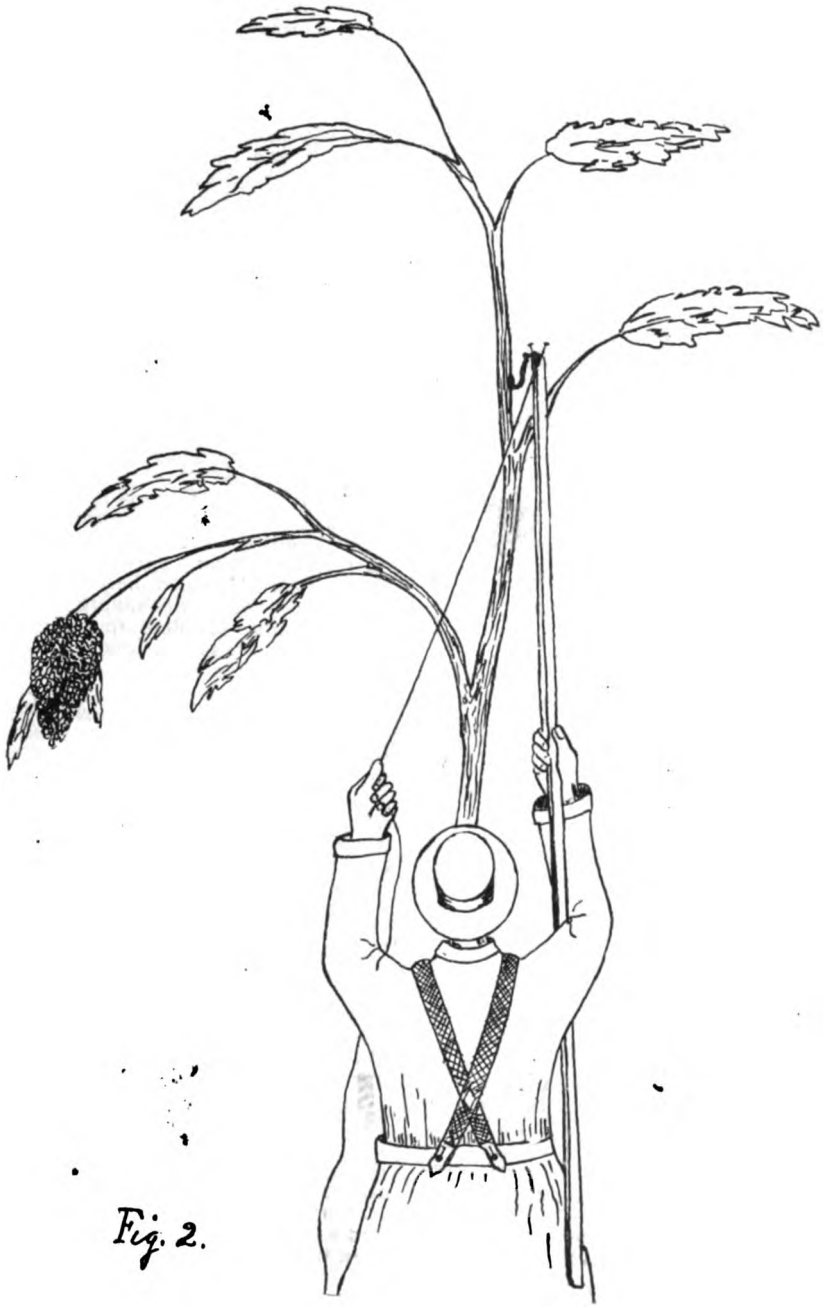

FIG. 2.—MANNER OF FASTENING THE SWARM BEFORE LOWERING.

pendicular position without jerk or jar, to keep the cluster intact as much as possible. This was no easy task to perform with one hand, but I succeeded admirably well, much better than I had expected. After the limb with the swarm had been disconnected and was suspended on the hook, I had both hands to manage the line on the gradual downward course of the swarm.

Figure 2 shows the manner of casting the hook and line over the little limb, that had to serve as a pulley when letting down the swarm. A similar operation was necessary to make the hook catch the limb on which the swarm was clustered. Neither trick would have required very much ingenuity if a person could have stood on the ground or on any other solid foundation, but 50 feet from the ground, standing on a springy rope with one leg, while the other is clasped around the tree as the only support in this dangerous position, it is a very different proposition.

At the foot of the tree is a fair representation of the swarm as it appeared after it reached the ground. The end of the line was fastened to the tree, while the operator descended and housed the bees.

A fair estimate of the height of the tree, the perilous undertaking, etc., can be gained from the fact that a 22-foot ladder had to be used to reach the first fork of the tree.

La Salle, N. Y.

Protection from Stings

BY EDWARD F. BIGELOW.

"BUT they will sting!" That is the insistent, persistent argument urged against honey-bees by the beginner. Did you ever try to be a missionary in popularizing honey-bees as a matter of natural history or of economic interest? Then you know how it is. Talk with all the power and enthusiasm that you possess of their habits, instincts, structure, parthenogenesis and metamorphosis, and interest follows you closely. Open eyes and open mouth, say "How interesting!"

Thus encouraged, to clinch the argument you tell of the ease in starting. A colony costs so little—how easily divided—nothing to do but to buy empty hives. You dilate on the extractor, you build an imaginary pile of luscious sections—so high—you get 20 cents a pound in open market, and 30, or even more, for choice home trade. You let your imagination loose, you soar aloft in the spirit of "blessed bees." You outdo the man who borrowed a hen, hatched out 15 chickens, then from each when grown 215 chickens, then 3215, and then returned the borrowed hen (as if one would miss just one poor old grandmother hen out of a flock of 3215). So you surpass even the "blessed bee" man. You graphically picture a sunny, sloping field with woody, northern background, 500 "little happy hives," outapiaries, country estate, a beautiful pair of horses, and an automobile thrown in. Then your enthusiasm is suddenly annihilated, your Utopian picture obliterated by that one little convincing exclamation, almost petulantly given, "But they will sting!"

Let's "take the bull by the horns," as I fancy that figure of speech easier and less painful than to "take the bee by its sting," and frankly admit that they will.

Sting! Of course they will—sting, as an up country farmer who called to see my bees not long ago said, as he closed a thrilling story of the bees that got up his trousers' leg. "Sting! Gosh all hemlock! You ought to have *seen them* bees sting!" The man's diction would have been more stingingly effective if he had said. "*Felt* those bees sting." However, his classic reference to the hemlock was happy, for when the bees got fairly waked up, they put in their poison as effectively as the hemlock tea put poison into Socrates.

But I am wandering from the thesis—bees will sting. Of course, with all

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rules there are exceptions, which, in this case, hardly except or prove anything.

First, there are the Caucasians, great honey gatherers, that do not sting much, at least on paper. Then there are the "gentle strains of Italians," most of which crawl delightfully calm and placid over the comb as you hold it up to the admiration of a friend.

"But they will sting!"

"Oh, no, they won't."

You open a hive with the Maeterlinckian "large, slow gestures," and you say, "See how easy it is. Not even gloves or veil needed." You show a super well packed, and you say, "Great honey gatherers these are; none better in my apiary."

And all the time you are saying to yourself, "How they did sting when I opened the hive that rainy morning, hunted for the queen, found her, took out the frame and put it in an exhibition single-frame hive."

Or there was that day in late November, when you opened the hive to see if everything was right for the winter.

Sting! On both these memorable occasions, the thermometer said cool—but you know it was a lie—the hottest on record. It was a reminiscent day. It took you back to boyhood hours when you plowed up a yellow jackets' nest, and your trousers, your shirt, your face and your hands were speckled with crescentic yellow polka dots. The horses, you remember, left at once the plodding, prosy life of agriculture and entered the race course across the field, and you quickly decided to go in the same direction as an expression of sympathy.

Yes, any bees worth having will sting on occasion. And I'm mighty glad they will. What a lot of suffering, ill-kept apiaries there would be if we didn't have the sharp stings to punch out of the ranks those bee-keepers who don't really love bees. If it wasn't for the stings everybody would keep bees as they keep cats, and that would make you sick of honey.

So when this statement confronts you, "But they will sting!" don't dodge it. Just say, "Sting! of course they will." I wish they would sting ten times as bad. We then would have fewer bee-keepers who don't really appreciate these wonderful insects, and we would have less joy in overcoming the difficulties of bee-keeping.

When you handle bees without veil or gloves, it is like having your photograph taken—it is a special occasion—it doesn't show you as you ordinarily are, nor the bees either. And now let's make another confession, public opinion to the contrary notwithstanding. The experienced bee-man has nerves, even if he knows how to control them, and he can feel. Pain to him is pain, the same as to any one else. And he can cast no hypnotic spell, nor do the bees "know him" any better than they know any one else of similar temperament, disposition and apiarian knowledge.

So it is best to be frank at the first, and not to try to popularize bees on a false basis. Yes, bees can sting, and they do sting, and they won't make an exception of you. Perhaps the bees of some colonies won't sting, but they will not be your favorites—that is among the Italian bees. And there are certain times and certain conditions of the hive when bees with careful handling will not sting; that is, not much. But if you are a faithful and enthusiastic bee-keeper you cannot limit all your handling to those particular innocuous periods. It is in the unfavorable times that you will need the best protection.

For a long time I have made a careful study of bee-veils and bee-gloves. How perfectly protected one's head looks in the illustration that advertises the veil! But most veils in actual practice fail to reach the ideal of the picture. The loose ones that slip over the hat won't work. The bottom must be firmly fastened down, as the bees will not make the attack horizontally. Some of them have an insidious, not to say familiar, manner of crawling up under the edges. Then as the apiarist bends in his work, the veil "flops" against the cheek or the nose, or especially the neck, and that is exactly the opportunity that the vindictive insect will not allow to pass unimproved. The Globe veil looks well, and the theory is right. The stiff bands are to hold the veil away from the face. And so they do. But they leave the neck unprotected. I have never felt that it is fair play to let the nose and the cheeks go free, and have a band of stings around the neck.

After much experience I have found the most satisfactory veil to be one that ties around the body, and may be pulled fairly taut so as to hold all parts away from the face. The hat brim must be really broad or the veil will not be held far enough away from one's features. To meet this objection I have made a "skeleton frame" of stiff yet light weight wire to slip over the hat. That holds all parts away from the face, and not the most active and ingenious bee can crawl up under it. It gives coolness, lightness, and absolute immunity from stings. In brief, it is the best that I have ever tried, and I have tried all that I ever heard of. It is the only one in which I am sure that I shall not get stung on the head.

On most questions pertaining to bees, I suppose that I shall be studying and investigating as long as I live. The rubber-glove question is an exception. So far as I am concerned, I have settled that for all times. Rubber is not the proper material. It is not a question of immunity nor non-immunity from stings. The vital point is preliminary to that, and is comparable to the famous recipe for cooking a hare—first catch him. With gloves the supreme points are:

1. Getting them on.
2. Wearing them.
3. Taking them off.

During warm weather rubber gloves on perspiring hands fail to meet these requirements. Protecting the hands from stings while at work with bees isn't much different in principle from protecting them from stains while weeding the garden, or from scratches when pulling up briers. The prime things are comfort and convenience. Rubber gloves afford neither.

The ideal glove should be of some woven fabric that will prevent the passage of stings. Long cotton gloves with an elastic band to bind them firmly around the arm just above the elbow have the right form. I wear them when stings are most to be expected. I am not in favor of oil-skin gloves. Plain *hard* cotton cloth is the best material. A secondary pair of gloves for special occasions, a cold or rainy day for instance, may be bought at most clothing stores for 10 cents. I have found it convenient to protect only the left hand, and use that for the dangerous work.

Such cotton gloves are not as good protectors when new as when they have been used a little; then propolis, comb, etc., give them a waxy-hard coating and filling through which stings will not pass. But in agreeableness this treatment of the gloves is much better than oiling. With such an equipment you can meet "But they will sting" by "No, they *can't* sting." I have worked for half a day at a time under unfavorable conditions, performing for certain colonies most meddlesome operations, but not a bee reached through to lance me.

Arcadia: Sound Beach, Conn.

Swiss Bee-Keeping

BY C. P. DADANT AND ED BERTRAND.

THE discussion which has taken place at different dates, in the American Bee Journal, between Mr. Getaz and our Swiss friends, may not seem useful to some of our readers. Yet it brings out two facts: First, the Italian bee, which is so much prized in the United States, and which has evidently proven better than the black race to fight European foul brood, does not maintain its reputation in Switzerland. Whether it is owing to a better grade of bees in the Swiss valleys, or whether the moist and cool climate of Switzerland is unsuitable for the Italian race, the testimony of our Swiss correspondents cannot be disputed. It is worth while to investigate this, for we have, on the Pacific coast, a number of regions where the climate is very similar to that of Switzerland.

Second, the Swiss bee-keepers are carrying on a desirable method, if it proves practical, that of keeping "mating stations" where only selected drones are permitted to exist. It remains to be seen whether it is possible to so isolate such stations that there

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will be no danger of matings with distant apiaries. These matters are worthy of investigation.

We must bear in mind that, in spite of our boasted advance in civilization, Switzerland is ahead of us in many things. It is the oldest republic in the world, and the most democratic. It has things in practice which we are only planning to try, the initiative and referendum, and government insurance. One of our statesmen, in opposing these reforms, asserted that Switzerland has less illiteracy than the United States, and is therefore better able to progress. So there is no disgrace in our investigating the Swiss ways.

The article of Dr. Brunnich, in the May number, page 167, was put in type early in the month, and a proof was sent to Mr. Bertrand, of Geneva, the former editor of the Revue Internationale, and author of the book, "Conduite Du Rucher" (Apiary Management), which has been translated into a greater number of languages than any other bee-book in existence. The cut of the Burki-Jeker hives, given on page 167, was taken from this work. Mr. Bertrand is of nearly the same age as our Dr. Miller, and has also a very thorough experience, acquired near Geneva. He uses the Dadant-Langstroth hanging-frame hive. We quote extracts from his reply:

"The Burki-Jeker hive, also called 'Schweizer stock,' was due to the improvements made by Father Jeker, a Catholic priest, former president of the Swiss Association. One of the merits of this hive is to be well suited for pavilions (house apiaries) with interior rooms in which the bees may be examined without causing robbing, since the colonies are thus protected from outside bees, and one is less often stung.

"In these closed rooms one has all the tools under the hand, and one may work in all kinds of weather. Moreover, the hives in a pavilion take much less space.

"However, these divers advantages are counterbalanced by less convenience in the visits. Pincers are required to remove the frames one after another, and they must be placed successively in a box at hand. To examine the frame which is the nearest to the entrance, it is necessary to remove all the others. But one becomes used to these maneuvers.

"My friend Jeker and I have often discussed the advantages and disadvantages of the Swiss hive as compared with the Dadant hive. He tried ours and appreciated it. I tried the Burki-Jeker hive at the Geneva Horticultural School, where I was professor of beeculture for a long time.

"Our bees swarm but little, and I believe that the use of large hives, and the habit we have of enlarging the brood-nest gradually by adding already-built combs, has a tendency to diminish the issue of swarms. But in some seasons nothing prevents the swarming fever.

"Referring to the article of Dr. Brunnich, page 167, I agree with him on several points, but he is completely in error concerning the sources of honey and its quality, in Romanic (French) Switzerland. We prize especially our first crop honey, which is white as compared to the dark or second crop honey. It is mainly white honey which is produced here. The honey from the pines is considered by us as inferior, and is not an important source. Our principal crop is from sainfoin or esparcet, yielding the very best honey. The celebrated Gâtinais honey is sainfoin honey. We also have the dandelion—but in less quantity than in German-Switzerland — sage, fruit trees, locust (an uncertain crop), etc. We usually separate the two crops and keep them apart.

"On the Italian bees, I agree with Dr. Brunnich. I have noted here that, in the spring, the Italians fly out too early in the morning and that many are lost, especially in the mountains. Likewise they rear too much brood in the summer and fall.

"As to the black select queens reared by our German confederates, their methods are certainly judicious; but the results have not given queens superior to ours. At least those which our French Swiss have bought from time to time do not prove worthy of note. The average yield of our bees is superior to that of German-Switzerland, as statistics show.

"We have more hybrids in our apiaries than they have in German-Switzerland, for their leader, Kramer, has objected to the importation of bees, by the members, but our bees are none the worse for the mixture."

Geneva, Switzerland, April 25.

DR. MILLER'S ANSWERS

Send Questions either to the office of the American Bee Journal or direct to DR. C. C. MILLER, MARENGO, ILL. He does NOT answer bee-keeping questions by mail.

Italians and Blacks

If one has common black bees and Italian-hybrids, how much more honey could you reasonably expect them to produce per colony after they were Italians by requeening? INQUIRER.

ANSWER.—I don't know. There may be a loss instead of a gain. Depends upon the kind of bees on hand and the kind introduced. I commenced with pure blacks, and the introduction of Italians likely increased my honey crops 25 to 50 percent. Then I increased perhaps as much again by constant selection and breeding from the best. But if I should now introduce an Italian queen into one of my best hybrid colonies, I would likely get less honey as a result At a rough guess, I should say that to introduce an Italian queen of best stock into an average black or hybrid colony would result in a gain of at least 25 percent.

Requeening—Value of Colonies

1. I have 2 colonies of black bees in box-hives. I should like to transfer them to modern 10-frame hives this spring. Is during fruit bloom the best time?
2. I would like to Italianize When would be the best time to do this? Could the new queens be introduced when the bees are put in their new hives? Could this be practiced on full sheets of foundation, wired?
3. How much is a colony of common black bees in a box-hive worth in the spring, summer, and fall?
4. How much is a colony of Italian bees in a modern hive worth, including super, sections, etc., in the spring, summer, or fall without the super? NEW YORK.

ANSWERS.—1. For years that was considered the best time, but nowadays many prefer to wait until the colony in the box-hive has swarmed. The swarm will be hived in a movable-frame hive, and then 21 days later, when all the worker-brood has hatched out the transferring will take place.

2. On some accounts in the fall, or at the close of the main honey-harvest, is as good time as any to introduce a new queen, as it is likely to interfere little with the working of the colony; but, of course, you will gain something in time by an earlier introduction. You can introduce her at the time of transferring, or you can take the time of swarming. You will be wise to use full sheets of foundation wired or splinted.

3. There is no rule about it, and it may vary anywhere from $1 to $5 or more.

4. Nor is there any hard and fast rule about this, although the variation may not be so great as with box-hives. It may be from $5 to $10 in spring, and $2 or $3 less in fall.

Shook Swarms—Bottom Starters

1. Is it a good plan to give shook swarms a frame of brood?
2. If queen-cells are started will they cause swarming?
3. Have bottom starters of foundation in brood-frames ever been used?
4. Has the queen the power to fertilize eggs or not?
5. Would transferring eggs from worker cells to drone-cells, or *vice versa*, prove it? NEW YORK.

ANSWERS.—1. Yes; it avoids the occasiona swarming out. The poorest frame of brood will answer.

2. I am not sure just what you mean, but there is always some likelihood of swarming when more than one queen-cell is in a hive, provided the colony is in condition to swarm and honey is yielding well.

3. I am not sure whether any one else has ever tried them, but I have. But I had no use for anything of the kind after I found I could use full sheets of foundation clear

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down to the bottom-bar by the aid of foundation splints.

4. Sure. She fertilizes all but the drone-eggs.

5. Yes, provided bees mature from the transferred eggs.

Sealed Covers—Re-stocking

I am a young bee-keeper. I had 7 colonies last fall, and put all of them under cover on the south side of a shop. I thought they would be good and strong in the spring, but when I set them out last week I found only 2 alive. These are good and strong. I had sealed covers on them, but they looked as if they had been pretty damp. They all had plenty of stores except one.

1. Do you think the dampness killed them? What plan would you suggest for me to take next winter?

2. I want to get more bees on the combs than I have now. Would it be best to order them by the pound from some of the southern States? Please advise me which is the best way to stock up, as I am very anxious to have a small apiary. ILLINOIS.

ANSWERS.—1. Likely the dampness had much to do with it. With only a single thickness of board for a cover, it would get quite cold, and the moisture from the bees would condense on it and fall in drops on the bees. To avoid this, have a super or some kind of a rim over the hive, and have this filled with rags, crumpled newspapers, planer shavings, or something of the kind; this filling resting on burlap which is directly over the frames. Even with the covers just as you had them, you could pile a lot of packing on top of the covers, and this would help a great deal, for it would make the sides of the hive colder than the cover, and the moisture would settle on the sides instead of on top. It would be a good plan for you to find within 10 or 20 miles experienced bee-keepers who winter successfully, and find how they winter.

2. That depends upon what you can buy them for near home. Find out what that is, and then compare with what they would cost from the South. If you find it better to buy near home, then you can use your empty hives for swarms.

Number of Frames in a Super—Miscellaneous Questions

1. How many frames would you advise putting in a 10-frame extracting-super in order to get nice, thick combs, using full sheets of foundation? I think it is easier to uncap thick combs. Will not bees build brace or bur combs if the extracting frames are too far apart?

2. Which would be the best way to put in screws on the bottom-board so you can get the best results out of the bottom-board when using hive-hooks, and arrange it so you can always have the bottom tight against the body so you can use an Alexander feeder uuderneath at the end of the hive, and so either side of the bottom-board could be used, leaving the feeder under the hive the whole season? Which are better, hive-hooks or hive-staples?

3. What kind of foundation is best to use in the extracting frames?

4. Will a virgin queen sting a person who is handling her? S. DAKOTA.

ANSWERS.—1. Either 9 or 8 frames will work well. No trouble with combs built between in either case. If only 8 frames are used, it will increase the space between combs only about ⅛ inch, and bees will not start an extra comb in so small a space.

2. I have had almost no experience with hive-hooks, and a great deal with staples. The staples work well. Whether the hooks would work enough better to pay for the extra expense I don't know.

3. If you use shallow extracting-frames, you can use light brood foundation, only you must be careful about turning the extractor too fast while the combs are new. Indeed you can use light brood with full-depth frames if you turn the extractor slowly, extracting only a part of each side and then reversing.

4. No.

Advantage of Two Supers

How much of a disadvantage is there as to supers in comb-honey production, when from lack of numbers of same only one is on a hive, and that being full, the hive is without a super for say 2 or 3 hours, that it takes to empty the super and put in new sections? Two hours may seem long for that, but an account should be taken that there may be more than one hive to be relieved, and that one makes one thing of emptying all supers, cleaning and fitting and then replacing all. This compared with having two supers, so that while one is off the other remains on. So doing, of course, the colonies, for the few hours that the supers are re-organized, are out of work except in the brood-chambers. PENNSYLVANIA.

ANSWER.—I have some doubt whether there would be any appreciable difference between putting on the empty super at the time of taking off the full one and a delay of 2 or 3 hours. During that delay the fielders would keep right on at work, only there would be a little congestion in the brood-chamber. But I would count *either* way wasteful; that is, I would count it wasteful to let a good colony have only one super at a time to work on. In the heart of a good harvest I would count it a poor colony in my apiary that would not be working on 48 to 72 sections at a time. Each colony will have 4 supers oftener than 3, and sometimes a colony will have as many as 7 supers at a time.

Cell-Protectors and Nurseries

1. In rearing queens, do you use cell-protectors? If so, give the plan. I am told by a bee-man that by using them I can hatch 6 to 10 in one nucleus, that the bees will feed them, and that I can then turn them out one at a time and remove as fast as they are mated. If you don't like that plan how would it do to hatch them, then put them in the queenless hives and nuclei to mate? Will not the queenless colonies accept them while virgins?

2. What kind of a cell-protector do you think is the best? How many days before hatching should they be put over the cells? KENTUCKY.

ANSWERS.—1. Let us be careful to discriminate between a queen-cell protector and a nursery. The West queen-cell protector protects all of the cell except the tip. The workers will not tear open the tip end of a queen-cell, but the protector does not hinder the young queen from emerging and running at large in the hive. On the other hand, no virgin can get out of a compartment of a nursery, nor can any bee get into it, except in the case of the Stanley nursery, which allows the passage of workers but not queens. I have never made much use of queen-cell protectors, and they cannot be used in the way you say, for any or all queens can get out of the protectors and kill each other. I have made a good deal of use of the Miller nursery, and a queen-nursery can be used in the way you mention, at least to a certain extent; that is, the virgins can be allowed to emerge from their cells, and you can remove them as you wish. But they cannot be mated, and must be removed and put in a nucleus or full colony to be mated. The workers cannot always be relied upon to feed the virgins in the nursery, but you can provide them with queen-candy. A queenless nucleus or colony will accept a virgin with proper precautions, but not always so readily as it will accept a laying queen.

2. I know of only one kind of cell-protector, the West, and I like the Miller nursery best, as might be supposed. The manner of use is very simple: The riper the cell is when confined the better, and I have sometimes put in the virgins after emerging from their cells. Of course the cells must be cut from the comb before being put in the nursery. A nursery is merely a convenience to hold the cells or virgins until they are wanted, and a virgin can be thus held 10 days or more, but the shorter the time the better.

A Good Location

How many colonies can I keep in one yard, and about how much comb or extracted honey could I get in one year, in this location, if my bees had good care?

I will name 10 of the most important honey-plants: Pussy willow, fruit blooms, raspberry, rock maple, vine maple, wild raspberry, wild blackberry, white and red clover, dandelion and fireweed. The fireweed lasts from the middle of July until frost, and the rock maple grows from 6 inches to 4 feet in diameter. It sounds like a swarm when the bees are working on the two. Besides these flowers I have named, there are 20 or more which the bees work on. Bee-pasture lasts from April 15 to the middle of September.

There were many wild bees here, and I have found as many as 11 swarms in one day; but now they are pretty well cleaned out. WASHINGTON.

ANSWER.—That's a fine list of honey-plants, and if the white clover, wild raspberry are abundant, you ought to have no trouble in keeping 100 colonies and getting in a good year 100 pounds of comb honey or 150 of extracted per colony. But that is on the supposition that they have the best attention, and not merely attention at swarming time.

Questions About Queens

1. Is there any way to tell how good the queen is in a weak colony, during brood-rearing?

2. Is there any way to tell whether queen-cells are built for swarming or for superseding?

3. If a young queen is given to a colony in the spring, will swarming be retarded, and if so, to what extent? That is, how much more crowding will they stand, or the reverse? ARIZONA.

ANSWERS.—1. No. She may lay enough eggs to keep a weak colony supplied, but not enough for a strong colony. Yet even in a weak colony a very poor queen may not keep the cells filled with eggs in an orderly manner, but will skip more or less cells. Even in a strong colony you cannot tell how good a queen is merely by looking at her brood. The most prolific queen is not by any means always the best. To learn how good a queen is you must wait to see how much honey her bees will store compared with others.

2. No. But you can often make a good guess. If 10, 12, or more are started, it is a pretty safe guess that swarming is contemplated, especially if at the usual time for

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swarming. If only 2 or 3 are started, like enough it is a case of superseding.

3. If a queen that has been laying only a few days be given at the beginning of the swarming season, and if the colony has not yet made preparations for swarming, there is very little chance of swarming that season. The same is true to a greater or less extent if the young queen be given earlier. I am not sure about the *retarding*, but the chances for swarming are greatly lessened by the giving of a young queen. When you ask me to tell just how much crowding they will stand, you're crowding me in too tight a corner. Fact is, I don't know. I think something depends upon the queen, and perhaps still more on the bees. With some bees, a vigorous young queen could probably not be forced to swarm by any amount of crowding, provided the queen were not given too early, and from that it will shade all the way down to where allowing only room for 25 pounds of honey might induce swarming.

Queenless or Very Strong?

I have 8 colonies, but one seems to fly more than the rest. What is the reason? At times when there is not one bee flying from the 7, there are many flying from the one mentioned above. PENNSYLVANIA.

ANSWER.—I don't know. Sometimes a very strong colony flies more than others. It may be more excitable than the others. It may be excited by the loss of its queen.

Transferring—Choosing a Location

1. I am a beginner, having 2 colonies of bees in "box hives." Will you please give me the best way to transfer them to a movable-frame hive?

2. Do you think this (eastern North Carolina) is a good place for bees?

3. I wish to requeen my bees after transferring. Please give me a good plan for requeening.

4. Do you think it would be a good place to locate an apiary in a locality where there are about 300 acres of cotton planted each year, 400 acres of corn, 200 acres of peas, and 50 acres of tobacco; in which there are 50 colonies of bees in box-hives within 2 miles?

5. What size of hives do you think best for this part of the country, when running for comb honey? NORTH CAROLINA.

ANSWERS.—1. Wait until they swarm, hive the swarm in a movable-frame hive, set it on the old stand, and set the old hive beside it. A week later move the old hive to a new stand 6 feet or farther away. That will strengthen the colony in the new hive, and give you a good lot of surplus if there is surplus to be had. In 21 days from the time the swarm issued there will be no brood in the old hive except a little drone-brood, when you will break up the box-hive, fasten in frames any good straight worker-comb you may find, and fill up the new hive with frames filled with foundation.

2. From what I have heard I think it averages fairly well.

3. You probably mean to send off and get a queen by mail, and with that will come directions for introducing. The plan quite generally used is to remove the old queen as you receive the new one, put the cage in the hive between the frames of brood, and let the bees release the queen by eating through the candy. Sometimes the plan is to have the candy so covered that the bees cannot get at it for a day or two, which is considered a little safer than if the bees should release the queen too soon.

4. My guess should be that bees would do well there; but it is hard to make a safe guess with no greater knowledge. In some places cotton is a great honey-plant, and the same may be said of tobacco; but I don't know how it does in your locality.

5. Most likely the 10-frame.

How Many Colonies?—What Kind of Bees, Hives, Etc.?

1. I desire to start in bee-keeping, and have had no experience in handling bees in movable-frame hives. I am at present employed in a railroad office as night telegraph operator, with hours from 1 o'clock a.m. to 10 a.m., and do not know how long I shall be located here. Which do you think would pay me better, to get only 1 or 2 colonies of a good strain or start with 10 or 20?

2. What kind of bees do you think are the best honey-gatherers?

3. Which hive do you recommend for a beginner, the Tri-State, Dovetailed, or Leahy telescope; also which size of frame, 8 or 10? (I am located in northeast Missouri.)

4. Which do you recommend for a beginner, comb or extracted honey?

5. Which frame do you think is the better, the Hoffman or loose top staple-spaced frame, and which is the easiest to handle?

6. What frame do you use? Also what size section or extracting frame?

7. What do you think of hives made of yellow cypress or redwood? MISSOURI.

ANSWERS.—1. It is better to have two than one, but with no experience it is hardly wise to go beyond three.

2. Taken all in all, there is perhaps nothing better than Italians. A cross between Italians and blacks may do as well in the first generation, but they are more likely to run out than the pure Italians.

3. These all have the regular Langstroth frame, 17⅝x9⅛, the size to be recommended, and aside from this the particular form of the hive does not matter greatly. The dovetailed has the advantage that it is the one most generally in use. As to the number of frames, the 10-frame is decidedly better for a beginner, and like enough for the old stager as well.

4. For some, one may be best; for some, the other. For the greater number extracted is probably better.

5. Preferences differ. Some like the Hoffman, and others would not have it around because the bees glue the frames together making them harder to handle than the other kind of frames. With the metal spacers latterly used on the Hoffman, it is not so objectionable.

6. I use the Miller frame, which is a plain Langstroth frame with common galvanized shingle nails for side-spacers and small staples for end-spacers. I use the same for an extracting-frame, although if I were going extensively into extracting I would likely have a shallower frame. I use the section most generally in use, 2-bee-way 4¼x4¼x1⅜.

7. I have had no experience with them, but from what I have read I suppose they are good.

Supersedure—Rearing Queens

1. I have noticed you said, on one occasion, that you left supersedure to the bees. In that case, you could probably tell me the percentage of queens that live 3 years; also 4 years, and 5, if any?

2. I propose rearing a few queens this season from an imported queen (Italian), as I find it a very slow process Italianizing an apiary of 60 or 70 colonies by the purchase of five or six dollar queens each year. I can have a location 4 miles from home, and 2½ miles from any bees. Now what outfit would I require to rear say 25 queens and have them mated in that yard? Would you take 2 colonies, one for drones and one for cells?

3. The horizontal method appeals to me as being more simple than any other that I have read of. What do you think of it?

4. Would a 2-frame nucleus be large enough; say 4 of these in a 10-frame hive properly divided? Would you make these nuclei at home, and then haul them to the queen-rearing yard?

5. With drones in all the hives, more or less, as in the swarming season, how would you dispose of them? I have your "Forty Years Among the Bees," but you do not seem to have had this mating question to deal with. MANITOBA.

ANSWERS.—1. It would take the figuring up of a number of years to find such an average. I have just looked up the year 1912, and find that the year opened up with 31 percent of the queens from the previous year, 64 percent of the two years previous, and 5 percent of three years. Another year might give quite a different story, as also might, and almost certainly would, a series of 10 or 20 years. For surely it will not prove the rule that there will be twice as many 2-year-old queens as 1-year-olds. Why that happened to be so in 1912 I do not know. Neither will it generally happen that there are no 4-year-olds, although 5-year-olds are very rare.

2. No great outfit is needed. All that is essential is to have the 25 nuclei and a colony with drones, unless, indeed, you do without the latter colony and manage to have the drones in your nuclei. No need to take the colony with your best queen. Let her stay at home, and merely take cells of her stock with the nuclei. I take it that you will use your regular brood-frames of full size, so the only special thing needed is the nucleus-hives, and you can do without them if you use a full hive for each nucleus.

3. I am not certain I know what you mean by the horizontal method, unless you mean several nuclei on the same level in a hive, and that certainly is good. Yet as a matter of convenience, of late years I have generally used a full hive for each nucleus. You have the advantage of mutual heat when you have several nuclei in one hive, yet in hot weather that does not make so much difference.

4. Yes, a 2-frame nucleus answers well. I wouldn't form the nuclei at home; merely prepare for them at home. That is the chief beauty of hauling the bees off to a distance of 3 or 4 miles; you can divide them up as you like, and they will stay where they are put without precautions. In a 10-frame hive you can manage to have 10 frames, each well filled with brood and well stocked with bees. After they have stood queenless in the home apiary perhaps two days, staple on each comb, centrally, a queen-cell. A day or two later take this hive to the out-apiary, and put one of the frames wherever you want a nucleus. At the same time you will take along another hiveful of brood and bees (that have been queenless for two or three days), and of these given to each nucleus will complete the nuclei, unless you wish to add a frame with some honey. Lay your plans so that by no chance shall any virgin emerge from its cell before being in its nucleus. The sooner it emerges after that the better.

5. A drone-trap at the entrance of the hives prepared for the out-apiary will dis-

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pose of the drones, so that you will take none there except in the one hive.

A Difficult Swarm—Old Queens—Placing Frames

1. What is a good way to hive a large swarm of bees from a bee-tree? The small entrance is about 20 feet from the ground, and the tree is much too valuable to be cut.

2. In requeening how can I keep the old queen in good condition for several weeks until I find out whether or not I shall need her?

3. Can large brood-frames be interchanged successfully with shallow extracting frames which were also used as brood-frames? Will it make any difference to the bees if the large frames do not *quite hang*, but only set in the brood-chamber? I am trying to use a number of deep supers as bodies; they measure exactly the same depth, but the frames of the regular bodies are just a little too tall to hang in them.

4. In hiving a swarm where only the queen and not quite two frames of bees can be captured, should the division-board be used as in nuclei, and about how many frames of comb or foundation should be given them?

KENTUCKY.

ANSWERS.—1. Your question puts me very much where those bees are—"up a tree." I have some doubt whether there is any way by which you can get those bees into a hive—provided the tree is not to be cut—without costing more trouble and labor than the bees are worth. Possibly you might smoke 'em out, if you can in some way secure footing enough to operate so high up in the air. The first thing is to decide as nearly as you can where the colony is located with reference to the entrance, for I take it from what you say that there is only one entrance. That may be at the top of the cavity, at the bottom, or somewhere between. With your ear against the tree, listen to the noise of the bees when you pound upon the tree, and you may be able to locate them. If the entrance be at the top, or near the top, then make another hole at the bottom; otherwise make a hole at the top of the cavity. Then into the lower of the two holes send something whose odor will drive the bees out of the upper hole, carbolic acid, tobacco smoke, etc. Even ordinary wood-smoke from a smoker may suffice if persisted in. As soon as the bees are out, plug the holes so they cannot return, and then treat them as a swarm.

2. The best way is to keep her in a nucleus of one or two frames. You may be able to keep her in a queen-cage provisioned with queen-candy, especially if you put a dozen of workers with her, and keep her in a warm place.

3. If I undestand you, the bottom-bars of the frames will rest on the hive-floor. That will be all right except for the annoyance that the bottom-bars will be glued to the floor. For a temporary thing it will do, but hardly for a permanency.

4. A division-board is not needed, but it is better to have a dummy; that is a board like a division-board, but having a space all around. The hive may be filled at first with combs, or you may give only one comb more than the bees can cover, adding others as they are needed.

APIARY OF J. H. WARNER & SON, OF MIDDLEBURGH, N. Y.

SKY-SCRAPERS IN A WESTERN APIARY.

Keeping Down Increase

I desire to keep down increase and rear new queens every year, and as I am busy I want to do this the simplest and easiest way possible.

1. How would this do? When a swarm comes out, hive it in a new hive on the old stand, put a queen-excluder over the entrance so as to get the old queen, kill her, then set the section of hive containing the brood and queen-cells on top of the new hive containing the swarm, and the super also, if there was one on the hive, placing the other section of brood on some weak colony? After shaking the bees out in front of the parent colony, would not this give a new queen, keep down increase, and give a good crop of honey? We would cut out all of the cells but one, or would that be necessary?

2. Just before the clover bloom comes, or before the bees show signs of swarming, say two weeks before the main honey-flow, how would it do to take one or two frames of brood and young larvæ, six full sheets of foundation, put them in a half brood-body, and set this on a section of empty combs; set this on the old stand, shaking part of the bees from the old frames; then set the old hive, queen and all near by on a new stand, and in 4 or 5 days put a super of full starters on the queenless part, and after the flow is over unite them? Would the new queen kill the old one, so that we would have a new queen in each colony so treated *without ever having to look up the old queen?* I don't like to hunt for queens. I had settled on the Chapman plan of taking the old queen away, but that means you will have to find her first, which is a job in full colonies. I have tried every plan given, and I believe to just look over one frame at a time is as good as any. SUBSCRIBER.

ANSWERS.—1. Yes, this would work well. You would have to cut out all cells but one, else the first virgin out of her cell would be likely to issue with a swarm. Instead of that, it would be a little better if you would wait until you hear the young queen piping in the evening (this would be a week or more after the issuing of the swarm), and then the next morning kill *all* queen-cells. This would be a little surer to give you a good queen than to kill all cells but one, for the cell left might not be the best, and in rare cases might even contain a dead larva.

2. I don't believe you would like this. You would hardly get the very best queens in this way. For one thing, queens reared so early are likely to be poor. Then you are not certain which part would be queenless, and if it should happen to be the one set on a new stand, it would likely be too weak and discouraged to rear a good queen. If the queenless part were left on the old stand, a swarm would too often issue with the first young queen.

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REPORTS AND EXPERIENCES

The Season of 1912

In order to give a true picture, we must go back to the fall of 1911, which was about the most discouraging fall I ever saw as far as bee-keeping is concerned. We had nothing but rain and cold weather all through August, September, and part of October, and by the middle of November considerable snow which stayed until spring, consequently the queens stopped laying in September. This, coupled with the fact that during August considerable honey-dew was gathered, and that for weeks the thermometer never went higher than 30 degrees above zero, is it any wonder that the majority of our bees died?

Had we bee-keepers been smart enough to take away all the honey and feed sugar syrup, we could have saved our bees, but as the honey-dew was not of a very dark color, aud did not taste bad, no one had any idea it would be so detrimental to the bees. The majority of bee-keepers lost nearly all their bees, many of them every colony they had. When my 46 colonies were taken out of the cellar (March 21) they were all alive but one, but on examining them the next day, I knew that half of them would not pull through. In many hives I found but a small handful of bees (and right here let me say that if we bee-keepers of the North could have sent to the South for bees by the pound, we could have saved most of those colonies). The hives were spotted so that not even the numbers could be read, and the odor was fearful.

By uniting the number of my colonies was reduced to 26. They were then well protected with tar paper, and as we had very nice weather for about two weeks, I fed thin sugar syrup, and also pollen, in a warm, sheltered place. The pollen was corn meal, oat meal, rye and graham meal mixed. If there had been a natural flow those bees could not have worked better. The queens started to lay at once, and though the spring was cold and backward, they kept laying more or less until the white clover flow started in earnest. When bees started to build queen-cells, and swarming commenced in earnest, they were divided artificially and increased to 53 colonies. The white clover flow lasted nearly two months, and tons and tons of nectar went to waste because there were not enough bees to gather it. These 53 colonies gathered a little over 3200 pounds of the finest honey I ever had, and they would have done much better had they been as strong in numbers as in other years.

After the clover flow stopped the golden-rod and fall flowers commenced to secrete nectar. All of a sudden, on Sept. 15, it stopped and no more honey came in. During the fall the bees started swarming again. As late as Sept. 26, a fine stray swarm came to my apiary. On examining this colony later I found the brood-chamber filled with young bees and brood, but very little honey.

The bee-keepers that did not heed the warning of the bee journals, and did not feed their bees will find to their sorrow this spring their bees have starved to death in spite of the splendid flow we had last summer. My 53 colonies were fed over 600 pounds of sugar. G. A. BARBISCH.

La Crescent, Minn.

A Washington Letter

Bees have wintered splendidly, although nearly three months in the cellar without a flight. Cellar wintering is much to be preferred to any outdoor plan in this part of the State, for the reason that while we have many bright, calm days that entice the bees from the hives, it is seldom that the air is balmy enough for successful flights, and many of them soon drop and perish in the snow.

Only 100 miles south of here bees winter successfully on the summer stands with no protection; while we, being nearer the Cascades, sometimes have sleighing from the beginning of December until March.

Bees are doing better each year, as more young orchards reach the blossoming age, and as the fruit-growers realize the importance of cover crops among the trees. Alfalfa, vetch, and clovers are used mostly for this purpose, and being first-class honey plants are welcomed by the bee-keeper. Bee-pasturage, outside of the irrigated districts, is rather scant. Millions of flowers, blossoming in early spring, that would be valuable nectar producers if they came at a more congenial season, "waste their sweetness on the desert air," while the bees remain impatient prisoners at home, waiting for the few calm, bright days with which we are blessed at this time. How they seem to appreciate each warm day as they start forth joyously on their circling flights, prospecting for pollen in the tops of the pussy willows; while, in many places, tardy snow-banks still cover their roots.

J. D. YANCEY.

Port Columbia, Wash., March 27.

Too Many Bees in One Locality

Some people may think this Buckeye valley is a great place for bees, where the farmers raise so much alfalfa seed each year. The bees do fairly well, but there are so many bees here now it cuts the honey crop down low, and there is not as much profit in it as there used to be. There are no bees for sale here, and no good locations for bees that I know of but what are already taken up.

One of the bee-men sold about one-half of his bees two years ago, and was going out of the business, but now he is increasing his number very fast. He is putting in an apiary within one-half mile from another apiary. He has also put one within a half mile of my apiary. I guess he figures that his bees will not fly very far. Within a radius of 4 miles there are 600 colonies of bees, and only one-half of the range is alfalfa. The other is mesquite along the canal. Any one who has been thinking of coming to this valley to locate can get some idea of how many bees there are here.

ALBERT J. ROSS.

Buckeye, Ariz., May 15.

Feeding Sugar Candy

I saw a discussion in the bee-papers lately regarding the use of dry sugar for feeding bees during winter. I have practiced candy feeding for the purpose of carrying colonies through the winter that are short of honey. I don't often have them myself, but I find plenty among my neighbors that I buy for a "song," and take through the winter on candy. They make fine colonies the next year. I use granulated sugar for the candy, and add about one cup of honey to 10 pounds of sugar, as I think this makes a softer candy, and bees can use it better in dry freezing weather. I have fed the cube candy, and lost 4 colonies; all I fed with it in the winter of 1911-12. I find it too hard and dry.

In making the candy I am careful not to have it scorched, and this is easily avoided by stirring it all the time, and keeping the fire low at the last. When, by the usual methods, I find it has boiled enough I remove it from the fire, and continue to stir it until it begins to thicken a little, when I pour it into wooden butter dishes that hold about 3 pounds. I use it when cold by placing the plates upside down on top of the frames over the cluster of bees.

I have brought through to this day one of the smallest colonies of bees I ever tried to winter; a small 2-frame nucleus, and they have not a drop of honey in the hive; nothing but cakes of sugar candy. These bees are as bright and clean as any bees could be.

The only loss of bees in this locality this winter is from starvation, and that among the careless who keep a few colonies in any old box. A BOY.

Ashland, Ohio.

Foul Brood Bad in Wisconsin

My bees came through the winter fine. I have not lost a single colony, and never before except one in 1911-12. I winter my bees outdoors in chaff hives, and if they are packed right they will go through all right. I have 40 colonies now, and should we get a good honey season I will increase to 50 colonies. That is all I care to have. If I attend properly to 50 I have more profit than otherwise from 100 colonies. For the last three years we have had poor honey crops.

We have very few bees around here. We had several bee-men with 100 to 200 colonies, but today they have none—all killed by American foul brood. I do not think we have 200 colonies in our county. I hope our new law will help us to get rid of that pest; that is, if it will be enforced by the officers. If not, then a few years more and we will have no more bees in this county. I think I don't say too much if I say there are more than 1000 foul-broody hives standing around. So you can judge for yourself what the result will be. I have fought against the disease since it started here, but under these conditions I will never get rid of it.

Grafton, Wis., May 6 WM. NIERODE.

Flood Does Damage

I have almost been swept out of business. On March 25 we had the worst flood in 35 years. I lost nearly all of my bees and and had my bee-supplies ruined. The water was almost in the house. I am washing the mud out of the hives that have a few bees in them in order to secure a few colonies.

LOUIS WERNER.

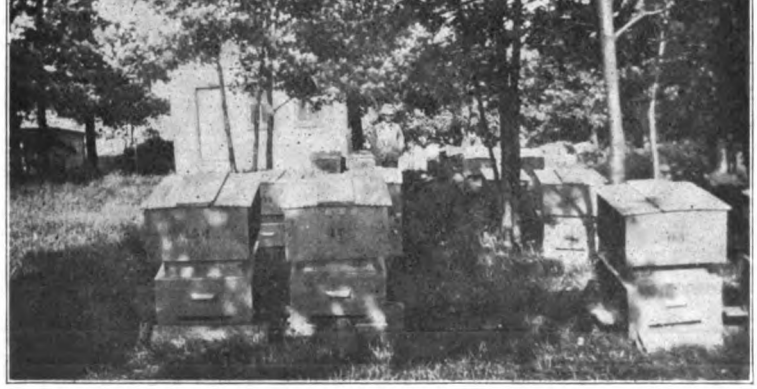
Edwardsville, Ill., April 2.

Very Small Loss

Our bees are all out of the cellar, and I am examining them very carefully. Hardly any winter loss. Our north yard had just one, and that one was queenless. Bees are gathering pollen today from the poplar and aspen, and also the maple.

FRANK F. FRANCE.

Platteville, Wis., May 1.



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SPECIAL — Golden-all-over queens that produce workers of the brightest kind. 5000 mated queens was my sales last season. Untested queens each 75c; 50, $32.50; 100, $60.00. Tested, $1.25. Select-Tested, $2.00. Breeders, $5.00 and $10.00. J. T. Dunn, Queen Breeder, 6A7t Rt. 3, San Jose, Calif.

I SHALL requeen all my colonies this spring. Will sell all one-year old queens for 40c apiece; $4.00 a dozen. Untested Italians of J. P. Moore's and Doolittle's stock, 90c apiece; $5.00 a dozen. No disease, safe arrival guaranteed. Edward O. Meserve, 6A3t Ventura, Calif.

THE Two B's of quality—Italian Bees and Sicilian Buttercups. For all that is best, unexcelled. Untested queens $1.00 each; six for $5.00. 2-frame nucleus with untested queen, $3.50; 3-frame nucleus, $4.00. Buttercup eggs and stock in season. 6A4t H. William Scott, Barre, Vermont.

FOR SALE—Guaranteed pure-mated 3-band Italian queens. I recommend 4 points: Gentle, prolific, extra good honey makers, good winterers. J. E. Hand strain. State Inspector's certificate. Queens by return mail or your money back. Select untested, 85 cts. J. M. Gingerich, Rt. 3, Arthur, Ill.

GOLDEN and 3-band Italians, also gray Carniolan queens. Tested, $1.00 each; 3 or more 90c each. Untested, 75c each; 3 to 6, 70c each; 6 or more, 65c each. Bees per lb., $1.25; nuclei per frame, $1.50. A discount on orders booked 30 days before shipment. 1Atf Bankston & Lyon, Buffalo, Leon Co., Tex.

QUIRIN'S famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular. Quirin-the-Queen-Breeder, Bellevue, Ohio.

GOLDEN and 3-band Italians, also gray Carniolan queens. Tested, $1.00 each; 3 or more 90c each. Untested, 75c each; 3 to 6, 70c each; 6 or more, 65c each. Bees per lb., $1.25; nuclei per frame, $1.50. A discount on orders booked 30 days before shipment. 3Atf C. B. Bankston, Buffalo, Leon Co., Tex.

MOORE'S Strain and Golden Italian Queens. Untested, $1.00; six, $5.00; twelve, $9.00. Carniolan, Banat and Caucasian Queens, select, $1.25; six, $6.00; twelve, $10.00. Tested, any kind, $1.50; six, $8.00. Choice breeders, $3.00. Circular free. W. H. Rails, Orange, Calif.

ONE of our customers (J. A. Carnes, M. D., Mt. Carmel, Pa.) writes: "Your bees are evenly marked; all golden but the tip. They are the most GENTLE bees I ever handled." Untested queens, $1.00 each. Send for wholesale prices. C. W. Phelps & Son, 3 Wilcox, St., Binghamton, N. Y.

THREE-BANDED Italian Queens and Bees. Untested queen, 75c each; six, $4.25; twelve, $8.00. Tested, $1.25 each; six, $7.00; twelve, $12.00. For select queens add 25c each to the above prices. Nuclei without queens, 1-frame, $1.50; 2-frame, $2.50; 3-frame, $3.00. For nuclei in quantity lots, and bees by the lb., write for prices and circular. 5A6t Robert B. Spicer, Wharton, N. J.

WE will requeen all our 2000 colonies this spring with young queens bred from our best home and imported Italian stock. We offer the one-year old queens removed from these hives at 40c each; untested queens, this year's breeding, 60c each. Special reduced prices for 100 or more, either old or young. We breed for business, not looks. No disease; delivery guaranteed. Book orders now to insure early delivery. Spencer Apiaries Co., Nordhoff, Calif.

CHOICE QUEENS from June to Sept. 1 at $1.00 each; six for $5.00. Place orders now, and have them filled in rotation. 5Atf D. J. Blocher, Pearl City, Ill.

HONEY AND BEESWAX

"NULL'S FAMOUS MELILOTUS HONEY." Sample for stamp. Null Co., Demopolis, Ala.

WANTED—Comb and extracted honey, and beeswax. Write us. Hildreth & Segelken, 265 Greenwich St. New York City.

WANTED—Comb, extracted honey, and beeswax. R. A. Burnett & Co., 6A12t 173 S. Water St., Chicago, Ill.

FOR SALE.—Light Amber Alfalfa. Put up in any size packages, any quantity. Write for prices. 11Atf Dadant & Sons, Hamilton, Ill.

FOR SALE

FOR SALE—50 to 300 colonies, 8-frame; good condition. E. F. Atwater, Meridian, Idaho.

FOR SALE—Our entire stock of hives at reduced prices. Gregory & Son, 5A2t Ottumwa, Iowa.

FOR SALE—One 10-acre alfafa farm, 6-room house, 200 col. bees. One 3 1-5 acre home, 6 room house, 200 col. bees. Both choice locations and fine climate. W. H. Crawford, 6Atf Roswell, New Mexico.

FOR SALE—225 Comb-honey supers, 8 and 10 frame. All painted and in good shape. I am going to Cauada; am out of the bee-business and must sell. Chas. Clark, 6A1t 9720 Logan Ave., Chicago, Ill.

FOR SALE—Empty second-hand 60-lb. cans-two cans to the case, good as new, 25 cents per case. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, Ohio.

FOR SALE—Fine Italian queens; untested, 75c; $8.00 per dozen; tested, $1.00; breeders, $3.00. Nuclei, $1.25 per frame. Full colonies in new modern eight-frame hives, $7.00. California Bee Co., 509 S. Rowan Ave., Los Angeles, Calif.

FOR SALE—At a bargain, 20-acre fruit ranch in famous Wenatchee-Columbia River red apple belt. Planted to standard winter apples; trees 4 years old. Will take bees and good location in South, in part payment. For full particulars write J. D. Yancey, Port Columbia, Wash.

SUPPLIES.

FOR SALE—Bees, Honey, and Bee-Keepers' Supplies. A. E. Burdick, Sunnyside, Wash.

BEE-KEEPER, let us send our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. White Mfg. Co., 4Atf Greenville, Tex.

BEE-SUPPLIES for all Bee-Keepers in southern Idado and East Oregon. Wholesale and retail. All we want is an opportunity to figure with you on Supplies. Write for Catalog. It will be ready by Jan. 1, 1913. It costs you a postal card only. C. E. Shriver, Boise, Idaho.

BEE-SUPPLIES—none better. 35 years of experience.

1 Ideal Winter-Case, complete	$2.50
100 Hoffman Brood-Frames in flat	2.50
500 No. 1 Sections	2.50
100 Section-Holders, scalloped	2.00
100 Section Slats, ¼ inch	1.00
1 Champion Smoker	.70

DADANT'S FOUNDATION.

Medium Brood, per pound	.59
Thin Surplus " "	.66
Extra Thin " "	.69

Discount on larger amounts.
Satisfaction guaranteed or money refunded. R. H. Schmidt, R. R. No. 3, Box No. 209. Sheboygan, Wis.

American Bee Journal

WANTS AND EXCHANGES

WANTED—To exchange queens and nuclei for Field glass, and 4-frame Root automatic extractor for Langstroth frame. 5Atf
A. D. D. Wood, Box 61, Lansing, Mich.

MISCELLANEOUS

RECLEANED Silverhull Seed Buckwheat, 1 bushel, $1.15; 5 or more, $1.00 per bushel. 5A2t F. O. B., Wm. Vollmer, Akron, N. Y.

DETECTIVES WANTED—Young men to operate in own locality, secret service work. Experience unnecessary. Enclose stamp for particulars. Universal Detective Agency, 304 Colcord Bldg., Oklahoma City, Okla.

REDUCED PRICES on Eggs, Chicks, Ducklings, White Leghorns, Penciled or Faun Runners. Free circular. Could use Italian Queens or Bees in exchange. 6A3t
R. O. Dickson, Box 61, La Harpe, Ill.

WE WANT to get old numbers of American Bee Journal, especially those in Volumes 40 to 48, the years 1000 to 1008 inclusive. Those having any of these numbers should write at once, giving the dates of the ones they have. We will immediately quote a price on them. Address,
American Bee Journal, Hamilton, Ill.

FOR GOOD QUEENS AND QUICK SERVICE, you can't do better than place your order with me. I am prepared to handle any size of order at the following prices (Carniolan, 3-band Italian and Golden): One untested queen, $1.00; six for $5.40; twelve for $0.60. One tested queen, $1.50; six for $8.40; twelve for $15.60 One-frame nuclei, untested queen, $2.50; six 1-frame, $15.00; one-frame nuclei, tested queen, $3.00; six 1-frame, $17.40. Full colonies, one for $7.50; two for $14.00. If more frames are wanted than are listed, add $1.00 each for as many frames as are wanted with nuclei. No disease, and satisfaction guaranteed. W. J. Littlefield,
1015 W. 7th St., Little Rock, Ark.

SITUATIONS.

WANTED—Family to take care of poultry and bee-plant. Must know the business.
W. S. Morlan, Box 715, McCook, Neb.

WANTED AT ONCE, help in apiaries. State age, experience and wages in first letter. None others answered. 6A1t
The Rocky Mountain Bee Co.,
Forsyth, Mont.

SITUATION WANTED—Single man, 29, able, handy, sober. Will work for board with a successful apiarist in order to get information on Bee-keeping. 6A2t
Manos, Block A, No. 9. Pullman, Ill.

POULTRY

INDIAN Runner Ducks, light fawns, also dark penciled, white eggers, $1.00 and up.
R. O. Dickson, Box 61, La Harpe, Ill.

FOR SALE — Buff Orpington eggs, pure bloods: $1.00 for 15. Satisfaction guaranteed. 2A1y W. H. Payne, Hamilton, Illinois.

FOR SALE — White-egg strain Indian Runner Ducks, White Orpingtons, White Wyandottes, Houdans, Bronze Turkeys. Ducks. $1.25 each. A. F. Firestone,
Broadwell, Athens Co., Ohio.

WESTERN QUEENS

3-BAND LONG TONGUE ITALIANS FREE

As a special introductory offer we are going to give absolutely free with all orders for 12 tested or untested queens, one select queen. Offer good only until June 15.

PRICES: Untested, 1, 90c; 6, $4.80; 12, $9.00. Tested, 1, $1.35; 6, $6.50; 12, 12.00. Virgins, 40c; 3 for $1.00. Queens shipped on 1-fr. nuclei, $1.75 extra. Satisfaction guaranteed. Write for our new plan.

"Queens Made to Order."

GLEN L. EVANS, Greenleaf, Idaho
BREEDER AND IMPORTER OF FINE QUEENS.

Try My Famous Queens
From Improved Stock.

The best that money can buy; not inclined to swarm, and as for honey gatherers they have few equals.

3-Band, Golden, 5-Band and Carniolan

bred in separate yards, ready March 20. Untested, one, $1; six, $5; 12, $9; 25, $17.50; 50, $34; 100, $65. Tested, one, $1.50; six, $8; 12, $15. Breeders of either strain, $5. Nuclei with untested queen, one-frame $2.50; six one-frame, $15; two-frame $3.50; six two-frame $20.40; nuclei with tested queen, one-frame, $3.00; six one-frame, $17.40; two-frame, $4; six two-frame $23.40. Our Queens and Drones are all reared from the best select queens, which should be so with drones as well as queens. No disease of any kind in this country. Safe arrival, satisfaction, and prompt service guaranteed.

D. E. BROTHERS, Attalla, Ala.

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is the best, handsomest and most valuable fruit growers' paper published in the world It is handsomely illustrated and shows the Western methods which have been so successful in winning high prices.

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QUEENS OF MOORE'S STRAIN OF ITALIANS

PRODUCE WORKERS

That fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested queens, $1; six, $5; 12, $9.00. Select untested, $1.25; six, $6.00; 12, $11. Safe arrival and satisfaction guaranteed. Circular free.

J. P. MOORE, Queen-breeder,
Route 1, Morgan, Ky.

JOHANN STRGAR

Wittnach. P. O. Wocheiner Feistritz,
Upper Carniola (Krain), Austria.

Breeder and Exporter of PURE CARNIOLANS

RAMER'S QUEENS
Of Moore's Strain of Italians

Ready June 15

Untested, $1.00; 6 for $5.00; 12 for $9.00

April 28, 1913.

P. B. RAMER, Harmony, Minn.—

Dear Sir:—The 30 queens I got of you in 1911 were the best queens; built up the fastest, and gave the largest yield of honey I have had in twenty years of bee-keeping. My average was 160 lbs. to the colony in 1912, and I lost a part of the flow for want of super room. Yours very truly,
HALVER J. HALVERSON.

Rt. 4, Preston, Minn.

Am Now Shipping Untested Queens from My

CELEBRATED PEDIGREED STRAIN!

My bees are the product of many years of breeding by both Swarthmore and Henry Alley. Both names stand out like beacon lights among our past and present breeders, for the best queens ever produced in the United States. Never had foul brood.

SWARTHMORE APIARIES, - Swarthmore, Pa.

ITALIAN BEES
Choice Home Bred and Imported Queens

Reared in full colonies

Prices for May:

One untest. queen	$1.10
One tested queen	$1.75
One select tested queen	$1.85
One Breeder	$3.10
One comb Nucleus, no queen	$1.15

½ lb. bees, $1.00; 1 lb. $1.90.

Safe arrival guaranteed. For description of each grade of queens send for free catalog.

J. L. STRONG,
204 E. Logan St., CLARINDA, IOWA

ITALIAN QUEENS

$1.00 EACH, $9.00 PER DOZEN.

Queens are reared by as good a method as anybody can rear Queens. My stock is hearty and fine honey-gatherers. All queens shipped by return mail within 24 hours after I receive the order.

M. BATES, R. D. No. 4, Greenville, Ala.

BREEDING QUEENS . . .

Can be sent out any time after May 1. We have a choice lot of Italian queens at $2.50, $5.00, and $10.00. No untested queens before July. Send for circular.

Doolittle & Clark, - - Marietta, N. Y.
Onondago County

Fine Yellow

Italian bees & queens. If you need a fine yellow Queen quick, try Fajen and you will order more. Extra fine queen, only $1.00; untested, 75c. 3-fr nucleus, only $2.75. Full colony in 8-fr. hive with fine tested queen, $5.50.

J. L. Fajen, Stover, Mo.

Line Bred Carniolan Queens!

Carniolans winter with their colonies most populous; build up best in the apiary; enter supers more readily cap their Honey very white; are gentle, and no more inclined to swarm than Italians, if properly managed. Ask for FREE paper, "SUPERIORITY OF THE CARNIOLAN BEE," explaining these bees more fully, and best management for comb and extracted honey. A limited number of nuclei and 8-fr. colonies for sale at end of June.

Untested, $1.00; doz., $9. Tested, $1.50; doz., $12.

ALBERT G. HANN,
Carniolan Queen Breeder. PITTSTOWN, N. J.

American Bee Journal

ROOT'S POWER HONEY-EXTRACTORS

Our new catalog is full of information about these labor-saving machines. With the difficulty of getting competent help, the power extractors are being sold largely in this and foreign countries, and the present demand is far greater than ever before. Read what a California producer says in a letter to a disinterested party, which we were permitted to publish:

GENTLEMEN:—I should like to say a few words in favor of the ball-bearing Root Automatic Extractor, as I believe it is as near perfection as it can be. This machine runs so easily that a few turns to get it up to speed is all that is necessary; and the men, while using the No. 17, which I formerly had, could average only 1000 lbs. per day, while with this machine they can average 2000 lbs. with but one additional man. No apiary can afford to be without one of these machines.

I feel like congratulating The A. I. Root Co. for making an invention that is such a satisfaction, financially to the honey-producers' interests. B. B. HOGABOOM, Elk Grove, Calif.

—HERE ARE A FEW MORE—

A word about the power extractor I purchased from you through H. L. Jones, of Goodna. I found it to work very satisfactorily, and it will do all it is claimed to do and more. I use the gasoline engine for several purposes besides driving the eight-frame extractor, such as driving the washing-machine for the lady of the house, and corn cracking and grinding. I consider it one of the best speculations I made in connection with the apiary. F. C. GOLDER, Pittsworth, Queensland.

Yours of the 16th, also the brake-band for power-extractor, came to hand. Thanks for sending it so promptly. This is my second season with the power extractor. I would not like to be without it now, even if I had only fifty colonies.
DAVID RUNNING, Grindstone City, Mich., July 10, 1910.

I received the extractor I ordered of you some time ago. It arrived in good shape. I set it up and extracted 143 quarts of honey, sold it at 35 cents a quart. The extractor is just fine—does the work completely. F. D. KING, Athens, Ohio, Aug. 16, 1912.

The engine I got of you this spring has done fine. We ran it all fall, and never had any trouble at all.
V. V. DEXTER, North Yakima, Wash., Jan. 19, 1911.

For Full Particulars See Our Catalog

The A. I. ROOT COMPANY, Medina, Ohio

BRANCH OFFICES

New York, 130-141 Franklin St.
Philadelphia, 8-10 Vine St.
St. Paul, 1024 Mississippi St.
Washington, 1100 Maryland Ave., S. W.
Chicago, 213-231 Institute Place,
Des Moines, 565 W. Seventh St.
Syracuse, 1631 Genesee St.
Mechanic Falls, Maine

A Few Agents Handling these Goods:

California.....Madary's Planing Mill, Fresno	Missouri.....Blanke Mfg. & Supply Co., St. Louis
.....Madary's Supply Co., Los Angeles	.....John Nebel & Son Supply Co., High Hill
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PAY THE FREIGHT ON BEE SUPPLIES!

28 years experience in making everything for the bee-keeper. A large factory specially equipped for the purpose, insures goods of highest quality. Write for our illustrated catalog today.

LEAHY MFG. CO. HIGGINSVILLE, MO. OMAHA, NEBR.

IF YOU are having trouble trying to live by eating by eyesight, send for my circulars and receive a slice of eating by brainsight.
C. W. DAYTON, Owensmouth, Cal.
The Ripe Honey Man

Early (FROFALCON) Queens "ITALIANS"

Untested Queens to June 1st $1.00 each. After June 1, 90c each. Special prices in large quantities. A 5-pound bucket of Orange Blossom Honey delivered at your door by express for $1.10.
JOHN C. FROHLIGER,
1642 Milvia Street, Berkeley, Calif.
Greater San Francisco, Calif.
Falcon Bee-Supplies, etc.

GOLDEN QUEENS

for business, 75c each, or 6 for $4.25. Untested, mailed promptly, for 25c, 50c, or $1.00 lots. Write me. Safe arrival guaranteed.
R. O. COX, Box 8, Garland, Ala.

CARNIOLAN QUEENS!

Untested $1.00 for one, $5 for six, $10.00 for twelve
Tested $1.50 for one, $8 for six, $15.00 for twelve

These queens are bred from the best strains selected after sending to queen raisers in many different places in Austria. Having bought all the bees within several miles of this Apiary we will agree to replace any untested queens that prove to be hybreds. Some of the best imported Carniolans show slight traces of yellow, but are gentle, not a cross hybred with two or three yellow bands.
WM. KERNAN, Dushore, Pa. Route No. 2.

WESTERN BEE-KEEPERS can save honey and get the best goods obtainable especially made to meet Western condition. Send for new catalog and special price-list to
Colorado Honey-Producers' Association
Denver, Colorado

Three-Banded ITALIAN QUEENS
Nothing but the Leather-Colored Bees bred by me. If you want supers of honey, use my Queens. Perfect Queens of Quality or money refunded. $1.00 each, or $9.00 per doz
C. S. ENGLE, Beeville, Texas

PHARR'S GOLDEN AND THREE BANDED ITALIANS

Untested - - $1.00
Tested - - $1.25
Breeders $3 to $5.00

We have 50 Golden and Three Band Breeders. Can mail from April 1 to 15. Place your orders now. Address,

JOHN W. PHARR,
BERCLAIR, TEXAS.

THE FAMOUS TEXAS QUEENS
ITALIANS! CARNIOLANS! BANATS!

Are Ready to Mail

PRICES:
Untested - - - 75c Each
$8.00 per doz.
Tested - - - - $1.25 Each
$12 per doz.

Circulars Free

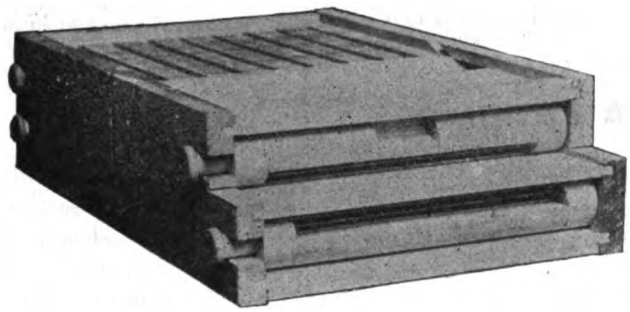
GRANT ANDERSON,
SAN BENITO, TEXAS.

American Bee Journal

The Robbers Disturb You When Feeding

Easy Solution, Use the

Schamu Patent Roller Entrance HIVE BOTTOM



No worry When you are ready, adjust for swarming, or drones. Ask for a free folder

Proper Ventilation for Honey Flow.

PRICES: $2.00 F. O. B. LIVERPOOL, FOR 8 FRAME SIZE.
$2.50 F. O. B. LIVERPOOL, FOR 10 FRAME SIZE.

Dr. Chas. G. Schamu, Liverpool, N. Y.

FOLKS LIKE

Michigan Comb Honey

However, it is so scarce that they can't get much of it. It is a case of under production. Better make this year a comb honey year. Pages 12 and 13 of our Catalog show comb honey outfits—and they are all Root's goods. Beeswax wanted.

Italian Bees and Queens in half-pound and pound packages.

M. H. HUNT & SON,
143 Condit St., - Lansing, Mich.

If You Need QUEENS

for Queenless Colonies, you want them in a hurry. We can fill your order for choice tested Queens by return mail for $1.00 each. Three band Italians. No disease. Satisfaction guaranteed. Send for price-list.

J. W. K. SHAW CO.,
LOREAUVILLE, Iberia Parish, LA.

BEE-KEEPER'S NOVELTY POCKET-KNIFE

Your Name and Address will be put on one side of the handle as shown in the cut, and on the other side a picture of a Queen-Bee, a Worker-Bee, and a Drone-Bee. The handle is celluloid, and transparent, through which is seen your name. If you lose this Knife it can be returned to you, or it serves to identify you if you happen to be injured fatally, or rendered unconscious. The cut is the exact size; it is made of best steel. When ordering be sure to write exact name and address. Knife delivered within two weeks after we receive order.

Price, postpaid, $1.00; or with a year's subscription to the American Bee Journal—both for $1.80; or given FREE as a premium for sending us 3 New subscriptions at $1.00 each.

American Bee Jonrnal, Hamilton, Illinois.

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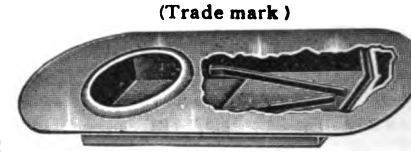


BEE-ESCAPE

SAVES {HONEY TIME MONEY} AT ALL DEALERS

Each, 15c; Dozon, $1.65, postpaid

If your Dealer does not keep them, order from Factory, with complete instructions.

R. & E. C. Porter, Mfrs.
Lewistown, Illinois

AT LITTLE ROCK, ARK.,

You can get your Bee Supplies and save time by sending your order to us, we can save you in FREIGHT as well as Money on supplies. Send for catalog of Supplies and Queens.

One Untested Queen, $1.00; six, $.500; twelve, $0.00. One Tested Queen, $1.50; six, $8.50; twelve, $15.00. One-frame Nuclei, Untested Queen, $2.50; six 1-frame, $15.00; one-Frame Nuclei, Tested Queen, $3.00; six 1-frame, $17.00.

If more Frames are wanted than are listed, add $1.00 each for as many frames as are wanted with Nuclei. No disease, and satisfaction guaranteed.

Little Rock Bee-Supply Company
1015 W. 7th Street - - - - Little Rock, Arkansas

3-Band Long-Tongued Red Clover Italian QUEENS

FOR SALE.—The 3-band queens are of the A. I. Root Co.'s improved long-tongued bees which have proven themselves to be the best of honey-producers. I use the Doolittle and Miller plans for queen-cells. One untested queen, 75 cts; 6 for $4.00; 12 for $7.50; 25 for $13.50; 50 for $25.00; 100 for $45.00. Double this price for tested queens. One-frame nucleus, $1.50. 2-frame, $2.50; 3-frame, $3.50. To each nucleus add the price of queen. No personal checks accepted

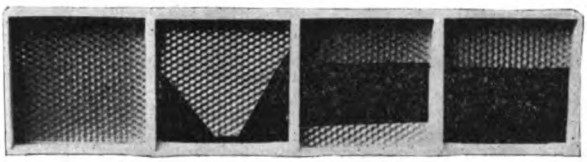
J. B. ALEXANDER, CATO, ARK.

American Bee Journal

"Falcon" Foundation!

Made in Our Plant at Falconer, N. Y.

From the sweetest and purest beeswax that can be obtained. No old stock—made daily by our own superior methods. Falcon foundation is coming in more constant use every year, and has proved itself to be most readily accepted by the bees.



Other Goods:—Double-grooved Hoffman brood-frames as well as sections will be needed for spring use. As it takes a lot of time to put up frames and sections with starters or full sheets, it would be well to look up your requirements. It will give you ample time by ordering now.

Light Standard Brood,	**1 lb., 58c; 5 lbs., 57c.**	**Light Section,**	**1 lb., 65c; 5 lbs., 64c.**
Extra Light Standard Brood	**1 lb., 60c; 5 lbs., 59c.**	**Extra Light Section**	**1 lb., 70c, 5 lbs., 67c.**

Write for samples of our foundation and Red Catalog postpaid. All goods guaranteed. A trial will convince you.

Distributors everywhere. Factory W. T. Falconer Mfg. Co., Falconer, N. Y.

Central States distributors: H. S. Duby, St. Anne, Ill., C. C. Clemons, Bee-Supply Co., Kansas City, Mo.

W. T. FALCONER MFG. COMPANY, - FALCONER, NEW YORK

Where the good bee-hives come from

"Griggs Saves Your Freight" **TOLEDO** **"Griggs Saves Your Freight"**

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Untested queens, 90c each; 12 for $9.00. Tested queens, $1.00 each; 12 for $10. Breeder queen, $5.00 each. I also sell nuclei. One 2-frame nucleus for $3.00; 10 2-frame for $27.50. Bees by the pound at $1.50; per lb., 10 1-lb. packages for $12.50. Add to these prices the price of the queen or queens desired. These prices are f. o. b. Mathis. I guarantee nuclei and bees by the lb to arrive in good condition within 1250 miles of Mathis. Positively no disease in my apiaries. Health certificate furnished with each shipment. I guarantee every queen to give entire satisfaction. This is a square deal. I hold 92 first prizes, 45 second, and 2 third prizes on my bees, queens, and products of my apiaries. This speaks for itself—NONE better. My 3-banded Italians carried off first prizes again at Dallas and Waco fairs last fall. All of these prizes have been won in the last three years. Queen circular free.

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Colorado Honey-Producers' Association

Denver, Colorado

American Bee Journal

HONEY AND BEESWAX

CHICAGO, May 17.—The market has cleaned up quite well on extracted honey during the past month, and prices remain about the same as in our previous quotation. The clover and linden bringing 9@10c per pound when in every sense perfect; other white honeys 8@9c per pound. Amber grades 7@8c per pound. No. 1 to fancy white comb honey 17@18c per pound; other grades from 1@5c per pound less, with very little on the market. Beeswax 30@32c per pound, and in good demand. R. A. BURNETT & Co.

KANSAS CITY, MO., May 21.—Our market is bare of comb honey; good demand. Supply of extracted fair; light demand. We quote as follows: Extracted, white, per pound, 8@8½c; extracted, amber, 7@7½c. Beeswax, per pound, 25@28c.
C. C. CLEMONS PRODUCE COMPANY.

BOSTON, May 22.—Fancy and No. 1 white comb, 16@17 per pound. Fancy white extracted in 5-gallon cans, 11@12c. Beeswax, 30c. BLAKE-LEE COMPANY.

INDIANAPOLIS, May 21.—The market is practically bare of fancy white comb honey. No. 1 white is selling at 16@17c per pound; amber comb in slow demand and at varied prices. Best extracted sells at 11@12c per pound in 5-gallon cans, according to quantity at one shipment. Beeswax is in good demand, and producers are being paid 30c per pound cash. WALTER S. POUDER.

SAN FRANCISCO, May 20.—There is very little of the old comb honey on the market, and we are promised some of the new very soon, and have had some new extracted honey in very small quantities. The demand for extracted honey has been better than for some time, and the crop so far in this section will be limited. Fancy comb honey at 14@15c. Water-white extracted at 9@9½c; light amber, 7½@8c; amber, 6½@7c; dark, 5@6c. Beeswax, 24@30c per pound.
JOHN C. FROHLIGER.

DENVER, May 22.—No more comb honey to offer. We quote extracted honey in a jobbing way at the following figures: White, 9c; light amber, 8c; strained, 6¾@7c. We pay 28c in cash per pound, and 30c per pound in trade for clean yellow beeswax delivered here.
THE COLO. HONEY-PRODUCERS' ASS'N.,
Frank Rauchfuss, *Mgr.*

CINCINNATI, May 23.—There is a fair supply of comb honey on the market, and we are selling our fancy double-decker comb honey at $3.75 to $4.00 per case. Fancy extracted honey in 60-pound cans at 9@10c a pound, and amber extracted honey in barrels at 6½@8c a pound, according to the quality and quantity purchased. For choice bright yellow beeswax we are paying 28@30c a pound delivered here, and if taken out in trade we allow 2c a pound more.
THE FRED W. MUTH CO.

NEW YORK, May 22.—There is nothing new to report; some few straggling lots of comb honey are still arriving and selling at from 14@16c for No. 1 and fancy white; lower grades at from 12@13c. Extracted is quiet with heavy shipments arriving from the West Indies, and the demand being dull prices are declining. We have no new southern as yet, but expect to have the first shipment within a week or so. Beeswax steady at 30@31c. HILDRETH & SEGELKEN.

CINCINNATI, May 20.—The market on comb honey is in good demand, with a fair supply. No. 1 white selling at $3.65 per case of 24 sections wholesale, and $4.00 per case retail. There is no demand for off grades. Light extracted honey in 60-pound cans, 8@8½c. White extracted honey in 60-pound cans, 9@10c. Beeswax is selling at $34 per 100 pounds.
The above are our selling prices, not what we are paying. C. H. W. WEBER & Co.

LOS ANGELES, May 20.—Stocks of white extracted honey on the coast are entirely exhausted, and are not quotable at any price. Light amber extracted honey is in light supply, and is quotable in carload lots at 6¾c f. o. b. Coast. Comb honey is in very light supply, and there is scarcely enough left for local consumption. Beeswax is selling to eastern buyers at about 30c per pound.
HAMILTON & MENDERSON.

Notice to Bee-Keepers

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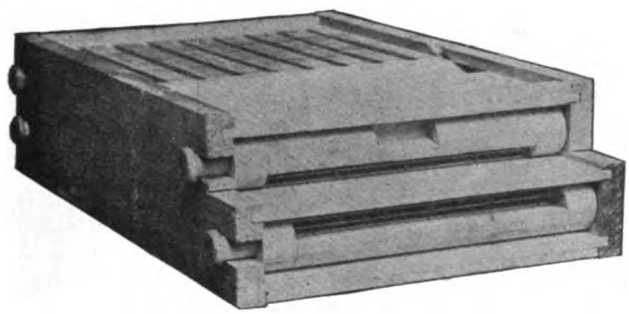

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AMERICAN BEE JOURNAL

OCTOBER 1913

22,138

Finding Three Queens in One Swarm

AMERICAN BEE JOURNAL
ESTABLISHED IN 1861 — OLDEST BEE PAPER IN AMERICA

PUBLISHED MONTHLY BY
American Bee Journal
1st Nat'l Bank Bldg. Hamilton, Illinois

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American Bee Journal

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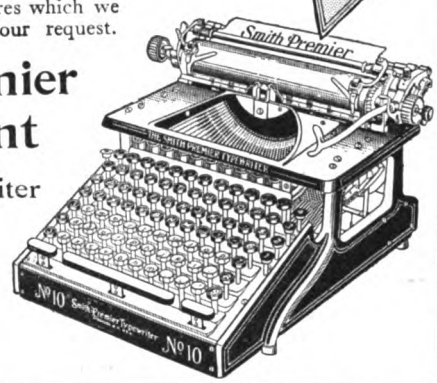

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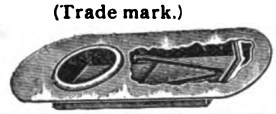

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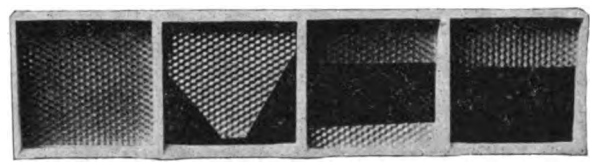

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C. P. DADANT, Editor.
DR. C. C. MILLER, Associate Editor.

HAMILTON, ILL., DECEMBER, 1913 **Vol. LIII.—No. 12**

EDITORIAL COMMENTS

Our Frontispiece

Our frontispiece is a reduced cut of the famous Dzierzon, the discoverer of parthenogenesis, with his autograph. This was mentioned in our October number, page 344.

Wonderful Crop at Dr. Miller's

The subscribers will read with great interest the marvelous report of Dr. C. C. Miller's honey crop for 1913, given by Miss Wilson in the "Sisters' Department." This report shows what good management, careful selection, a good crop and a good location all combined can do. At 15 cents per section, or $1.80 per 12-pound case, the returns would be $39.97 per colony. In view of the fact that Dr. Miller has had to fight European foul brood, we believe this report should cheer up the discouraged ones who wonder whether it is worth while to keep bees when disease is in the land.

The Bigelow Swarming Theory

The article in the October number, by our good friend Mr. Bigelow, has brought a flood of protests, only a few of which were published. It is gratifying to see how quickly practical apiarists come to the rescue, when attempts are made to wreck some proven facts in natural history. Yet in some cases wrong theories are permitted to float a long time before they are crushed. During our trip abroad, we had quite a heated discussion with an active, practical apiarist who had propounded the idea, in print, that the Dzierzon theory was wrong, because in four different instances he had noticed drone-brood around a queen-cell. He was sure that the bees could change the sex by feeding a different food, and that they had changed the sex of those larvæ around each cell, in order to have drones to fertilize those queens when they hatched. He held to this tenaciously, and was only vanquished when his attention was called to the fact which he could not contradict, that those drones, being of the same age as the queen, would hatch so much later than she; that she would be already mated when they came out of their cell.

Another man, who was tearing down all the text-books by asserting that wax costs the bees only a pound or two of honey for each pound of wax, and that he had proven it by the financial profits which he had reaped, turned out to be a financial failure, seeking for investors.

Mr. Bigelow is good-natured, and in good faith, but he will have to give up that theory of plurality of queens in the first swarms, just as the followers of Alexander had to give up the attempt at keeping several laying queens in each colony during the season. The text-books are all right yet.

Since writing the above, we have received a letter from Mr. Bigelow, insisting on the "purpose of the drone in the natural swarm." We do not believe that it is necessary to show that nature has a purpose in inducing the drone to follow the swarm, any more than in permitting him to join any strong colony to which he is attracted, by the noise they make. Many things in nature have no plausible purpose, as, for instance, the nipples on a man's breast. But Dr. Miller sends us the following which would perhaps satisfy those who, like Mr. Bigelow, want to see a purpose in every action, in every habit of the insects:

On the whole it would be a good thing for all beekeepers if they could have at least a little of Dr. Bigelow's enthusiastic search for reasons, even in cases where there's no money in it. Life would be broader and more worth the living. It's a sad thing for al. of us when we lose the spirit of the child who pulls the watch to pieces to find what makes the wheels go 'round.

In the present instance, Dr. Bigelow sees drones in a swarm, recalls nothing said about it in bee literature, and then reasons something after the following fashion: The office of drones is to mate with virgins; drones are found in a swarm; ergo, there must be virgins in the swarm.

At the present day it is the practice quite generally to prevent after-swarms, so almost every swarm is a prime swarm, having a laying queen. We all know that there are virgins in after-swarms, the question is whether there are any in prime swarms. For many years it has been my practice to scrutinize closely every colony with a laying queen that by any reasonable possibility might be expected to swarm, and that about once every 10 days for about 3 months' time. The object of the scrutiny was to discover and destroy all queen-cells. If virgins go with prime swarms, I should among those thousands of cases have found at least a few cases in which vacated cells showed that virgins had emerged before the issuing of a swarm. I never found one.

Another thing already mentioned by another writer. During nearly all of my bee-keeping experience I have kept my queens clipped. In spite of all my efforts to the contrary, I have had many swarms to issue. They would

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issue just the same as if the queens could fly, but they would always return to the hive, or to some other hive, after flying about for a short time, possibly after remaining clustered upon a tree for a short time. I hardly need to waste words to argue that no such swarm would return if a virgin with perfect wings were present.

In my former article I said I didn't know why drones should go with a prime swarm. I didn't; but before I was through writing there occurred to me a possible reason, which I offered in a hesitating way. Having had time to think it over more fully, I am now prepared to repeat it with confidence. I believe drones a necessity for most prime swarms, and that their absence would bring disaster. Of course, drones of neighboring colonies would answer every purpose, but nature doesn't take any chances as to there being any neighboring colonies.

In the normal course of affairs every laying queen is superseded by the bees. Close observation shows that in nearly all cases preparation for this supersedure occurs after swarming; in many cases very shortly after swarming; in some cases immediately after. Now let us do a little figuring. When an egg is placed in a queen-cell a virgin emerges from the cell in about 15 days, and is ready for the drone about 5 days later; thus making 20 days from the laying of the egg to mating. A drone emerges in 24 days from the laying of the egg. I don't know how old the drone must be before he is ready for service, but if memory serves it is estimated to be when he is 10 days old. To be on the safe side let us call it 5. That makes 29 days from laying of egg to mating. When a swarm is hived and has its combs to build, it is well known that no drone-comb will be built at first, only worker-comb. So long as the queen keeps pace with the comb-builders, the bees will continue the worker-comb, and when they do begin to build drone-comb it will be to fill it with honey. Later on may come the drone-eggs, if indeed they come at all that year. It will probably be a conservative statement to say that no drone-eggs may be expected generally until 3 weeks after the hiving of the swarm. Add that 3 weeks to the 29 days we already have, and we have 50 days from the time the swarm is hived until there are drones ready for mating.

When the bees, making their preparations for swarming, consult Dame Nature as to what shall be done about the matter of drones, the old lady will say: "Well, eggs may be laid in queen-cells anywhere from 5 to 25 days after settling in the new home, and 20 days later drones will be needed for mating; in other words, they will be needed somewhere from 25 to 45 days after swarming. But they will not be ready until 50 days after that time. So you would be 5 to 25 days short if you depend upon rearing drones after being hived. That won't do. Don't take any chances. There are plenty of drones here in the hive; take 'em along, and make sure." And take 'em along they do. And that's the *why* of drones going with swarms, no matter whether they come early or late in the season. In the case of after-swarms, the matter is still simpler. A virgin that goes with the swarm must mate at once, so there's no other way but for drones to go with the swarm.

Typographical Error

On page 367, speaking of the peasants of Gascony who brimstone a part of their bees every fall, I am made to say that "each brimstoned colony brings a return of about $20." For fear that some of our readers may want to emigrate to Gascony to reap such a lucrative harvest, I hasten to say that the figure should be $2 instead of $20; that is to say, the contents of the basket hive which they call a "bournac," bring them about 4 cents per pound, more or less according to the "fatness" of the contents.

The Former Editor a Popular Man

From divers editorials published in the papers of the Northwest, it appears that our former editor-in-chief, George W. York, is a very popular man in the city of his choice, as well as in the Northwest generally. He was selected as judge of the honey exhibit of the Interstate Fair at Spokane, Wash. He was also elected secretary of the Sandpoint, Idaho, Commercial Club and of the Sandpoint Chautauqua Association for 1914.

Differences in Location

Our good, practical apiarist and friend, Mr. Wilder, has an article in this issue entitled, "Not Much Difference in Locations." We believe it is necessary to underline the fact that he is writing this from a southern State, in a part of the country where there is probably but little difference between one spot and another. But we should not take this as typical of the entire country. There are spots in the United States where bees could not make enough to live, even in isolated colonies. There are other spots where it is almost impossible to overstock the region.

In most of our northern States the most desirable locations are probably those in which pastures are numerous. The white clover is the main resource. There are other spots where a variety of plants or trees give a sufficient harvest. In alfalfa regions many more colonies may be kept to the square mile than in corn-growing regions. It is necessary to study the flora of the locality, and to have some actual experience with the honey crops to pass an opinion. Keeping bees as we have done for years, in six or eight different spots, we have discovered that crops vary much more than we thought, and some spots are constantly ahead of the others.

In most localities of our Mississippi Valley, bees may be kept profitably. But some localities will sustain 100 colonies or more, with good results, while other fields, only a few miles away, may not sustain more than 40 or 50 with as much profit. Study the conditions, and do not forget that bees *usually* do not forage farther than a mile or two away from home. The exceptions only prove the rule.

Dequeening for European Foul Brood

In the Beekeepers' Review, page 353, J. M. Buchanan, Tennessee State Inspector, says:

"In the treatment of European foul brood by requeening, Dr. Miller recommends letting the colony remain queenless for two or three weeks before introducing the new queen. Perhaps this is best, as it gives the bees more time to make a thorough job of cleaning up. I know of one apiary in which there were perhaps 50 colonies of hybrids, most of them badly affected with European foul brood. No treatment was given them except that the queens were removed and young golden Italian queens introduced at once. By the next season at least 90 percent of these colonies had cleaned up and were in a healthy condition."

In the case mentioned, where there were 90 percent of cures by the mere change of queens, it will likely be understood generally that the change to different and more resistant stock was accountable for the result. Possibly; but there is another factor that may have played no small part. When an old queen is replaced by a new one, the new one does not begin laying the very minute the old one stops laying. Indeed, it may be considered successful introduction if the new one gets to laying within three days after the dethronement of her predecessor. That break in brood-rearing is the factor meant. Until a better theory is advanced, it is the belief of the writer that the disease in a hive is *generally* perpetuated by the nurse bees feeding the young larvæ with the juices of larvæ that have just died from the disease, and that very soon after the death of such larvæ—possibly within two or three days—their juices become so offensive that they are no longer sucked by the nurses. According to that theory, if there be a break of two or three days in laying, there will be a corresponding break in the feeding, which might go a long way toward the discontinuance of the disease.

Mr. Buchanan seems to have my rec-

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ommendation somewhat mixed with the Alexander treatment of European foul brood. Mr. Alexander removed the old queen, and 20 days later gave a ripe queen-cell or a virgin just hatched. In attempting to follow his plan I made the blunder of not noticing that a virgin was to be introduced, but introduced a laying queen. Afterward I changed to the plan of introducing a virgin immediately upon the removal of the old queen. I believe that is better than to wait 10 days later and introduce a laying queen, since in that 10 days of waiting the bees are in a more or less discouraged condition, while with a virgin present they are stimulated to activity in cleaning up the cells in preparation for her laying.

This plan I still think a good one in case the queen is poor. Mr. Alexander said the queen of a diseased colony was generally so poor she was not worth saving. I believe this is true where the colony is badly diseased. But in mild cases the queen does not seem to be injured to any appreciable extent. So in such cases I merely cage the queen between the combs or at the entrance for a week or ten days. Indeed I have not killed a queen in any case the past season. But no case was allowed to get bad. If a single diseased cell was found—and it is not a very difficult thing to spot a single bad cell in a whole hive—that colony was at once treated.

As the queen of any diseased colony was caged at the beginning of the harvest, two birds were killed with one stone. For that caging of the queen for ten days put out of the bees' heads any foolish notion they have had about swarming. And I had colonies so treated that went above the average in the amount of honey they yielded.

In at least one case I put all the brood in an upper story above an excluder, leaving the queen in the lower story without any brood. It worked all right. This plan has the advantage that there is little or no break in brood-rearing. It works ~~all right~~ for extracted honey, but does not answer well for comb honey.

So it will be seen that I do not recommend "letting the colony remain queenless for two or three weeks;" and, in fact, do not recommend letting the colony go a day without a queen in the hive, although I do stop brood-rearing for a week or ten days with the queen still in the hive. C. C. M.

MISCELLANEOUS NEWS ITEMS

California and Northern California Meetings.—The California State Beekeepers' Association will meet in annual convention in the Y. M. C. A. building in Los Angeles Dec. 9, 10, and 11.

A letter from Alvin L. Heim, secretary of the Northern Association, states that this association will meet at Sacramento Dec. 26 and 27.

Indiana to Hold Meeting.—The annual meeting of the Indiana State Beekeepers' Association will be held in the State House in Indianapolis Dec. 3. Every beekeeper is urged to attend.

G. W. WILLIAMS, *Sec.*

Report from New Zealand.—The New Zealand Farmer reports colonies exceptionally strong in brood and young bees. Drones are beginning to make their appearance in the hives. New Zealand has its spring and summer while we are having our fall and winter.

Honey Day.—December 15, has been designated as Honey Day in Indiana by the Indiana Beekeepers' Association. The day is being given publicity through the local papers in Indiana. Every one is urged to eat a little Indiana honey.

Washington State Meeting. — The Washington State Beekeepers' Association will hold their 20th annual convention at North Yakima, Wash., on Wednesday and Thursday, Jan. 7 and 8, 1914.

A good program is promised, and a surprise is in store for all who attend.

A banquet will be served on Thursday.

All beekeepers, whether members of the Association or not, are urged to attend.

J. B. RUMAGE, *Sec.*

Lively Work at a Fair.—The following is an extract from a private letter from Allen Latham:

"When I got home I had to put in all my time for nearly a week getting ready for the State Fair at Hartford, Conn. There I sold nearly 1000 of my sections, and took $36 in premiums. Paul and I sold about 6000 honey sandwiches during the week. On the afternoon of the first day, Labor Day, I wish you could have seen us. Paul was kept busy slicing rolls and getting out sections.

"I simply made myself into an automatic machine, which put a slice of honey into the sliced roll, handed it out and received the money. For an hour and a half we had a line (we made them line up at the left and move down) about 15 feet long, and it did not break in all that time. I think we averaged about seven sandwiches a minute during that time. But it was hard work."

No man could compete with such work as that. But besides being a very live Yankee, Mr. Latham has had an experience of 20 years at this sort of thing, and knows the ropes thoroughly.

Exhibits at Illinois State Fair.—Visitors of the bee and honey exhibit at the Illinois State Fair, this season, state that the exhibits ranked well up to what they have been in previous years. Prizes were awarded to the following Illinois exhibitors in the order named:

A. Coppin, of Wenona.
C. Becker, of Pleasant Plains.
Jas. A. Stone, of Springfield.
W. E. Miller, of Libertyville.
E. H. Wells, of Libertyville.
Anthwine Phillips, of Dwight.

The part of the exhibit which attracted the most attention was the live bee demonstration as given by Mr. and Mrs. Coppin. Their demonstration in a cage was excellent, and never failed to draw an interested audience.

Idaho and Oregon Meeting.—The annual convention of the Southern Idaho and Eastern Oregon Beekeepers' Association will be held at Ontario, Oreg., on Dec. 9. Program is as follows:

Address of Welcome—Pres. A. I. McClanahan.
"Lessons of Past Season"—J. E. Lyon, A. T. Pennington, Chas. Nelson.
"Overstocking"—A. I. McClanahan, W. Pennington.
"Extracting Outfits, Power Driven," etc.—Benj. Paine, H. Crowther.
"Queen-Rearing"—E. F. Atwater.

DINNER.

Election of officers.
"Spring Feeding"—J. R. Marlowe, C. E. Dibble, W. W. Foster.
"Making Foundation"—M. Townsend.
Discussions.

R. D. BRADSHAW, *Sec.*

Bee Meetings.—Following is a list of the bee meetings to occur within the next few months, with date and place of meeting. Other meetings will be added as the dates reach us:

New York State Association of Beekeepers, Rochester, N. Y., Dec. 2 and 3.

Minnesota State Beekeepers' Association, Minneapolis, Minn., Dec. 3 and 4.

Eastern Illinois Association, St. Anne, Ill., Dec. 8 and 9.

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Iowa State Beekeepers' Association, Des Moines, Iowa, Dec. 10, 11, and 12.

Indiana State Association, Indianapolis, Ind., Dec. 3.

California State Beekeepers' Association, Los Angeles, Calif., Dec. 9, 10, and 11.

Southern Idaho and Eastern Oregon Beekeepers' Association, Ontario, Oreg., Dec. 9.

Missouri State Beekeepers' Association, Excelsior Springs, Mo., Dec. 16 and 17.

Chicago - Northwestern Beekeepers' Association, Chicago, Dec. 17 and 18.

Northern California Association, Sacramento, Calif., Dec. 26 and 27.

Washington State Beekeepers' Association, North Yakima, Wash., Jan. 7 and 8, 1914.

Ohio State Beekeepers' Association, Columbus, Ohio, Jan. 14 and 15, 1914.

Wisconsin State Beekeepers' Association, Madison, Wis., Feb. 3 and 4.

Short Course in Beekeeping.—The Ontario Agricultural College offers a two-weeks' course in bee-keeping, beginning Jan. 13 and ending Jan. 24. The following subjects will be studied: "Care and management," "Swarming," "Queen-rearing," "Diseases and treatment," Quality of honey," "Marketing," etc. The course will be under the direct supervision of Morley Pettit.

Decoy Hive.—The following questions on decoy hives were asked of Dr. Bonney, and he has been kind enough to answer them through the columns of the Bee Journal:

1. Will strips of foundation do as well as "old comb for the decoy hive?"
2. Is the decoy hive worth while in a locality where wild bees are not especially plentiful?
3. Would a huckleberry pasture, with high bushes and a good growth of all kinds of trees, form too thick a growth to place a decoy hive?
4. Would it be worth while where there is a very good supply of *evergreen trees?*
5. Is there any good way to place the decoy hives so that bees will find them and people not see them?

The reason I ask some of these questions is because I know a man out in the country who keeps bees in old box-hives. Swarms get away each year. He gets little if any honey, and doesn't care as long as he is at no expense. There have been those in times past who put up boxes to catch bees not far from his farm. He took pains to find them and blow them to pieces with a gun.

I am a law-abiding citizen, and do not mean to steal from any man, but if I could get some of his "escaping swarms" they would be a great deal of help to me, instead of eventually being the prey of the bee hunter who destroys all. There is a great deal of bee hunting done here in Rhode Island, the most successful ones locating from 10 to 12 in a season.

The bee-inspector tells me that there

HOME APIARY OF I. E. PYLES, OF PUTNAM, ILL.—MR. PYLES HAULS IN ALL "CRIPPLED" HIVES FROM HIS OUT-APIARIES SO THAT HE MAY REPAIR THEM AT HOME.

are about 400 individuals in this State that have one colony or more. But strange to say, the great majority are still in the "old-fashioned box-hives, and bee-keeping is looked upon as a joke. I do not think there are more than 24 successful beekeepers in the whole State. GARDNER B. WILLIS.

Providence, R. I.

ANSWERS.

1. Strips of foundation would be of no use in a decoy hive. It is the smell of the old comb that would attract the bees, if anything. Personally I do not care for the comb, as my observation has been that the bees go as well into an empty box. However, they do go to a house which is full of comb and honey, and a large amount of comb may be an attraction.

2. Yes, a decoy hive is valuable where wild bees are not especially plentiful, for bees come a long distance to a box. You may know that it is pretty well established that bees send out scouts to find a new home when ready to swarm, and sometimes bees will go many miles, stopping, I suppose, on the way to take a rest. I *think* the small trunk of a tree, hollow, would make an ideal decoy hive, and would be apt to catch a swarm where bees are seldom seen.

3. No; the bees will find a home in any kind of a growth of timber.

4. I see no reason why bees should not seek a cavity in an evergreen tree, and so find a decoy hive.

5. I would make decoy hives of round boxes covered with bark, so that your farmer would have trouble to find them, I think. However, it is not necessary to go near his place to catch his bees, even if he were able to identify them, for they are apt to go 20 miles before they stop the second time. Unless he follows them and recovers them he loses all title to them. They belong to any one who hives them. Just put up your decoy hives where you know they will not be disturbed, as on the farm of a friendly farmer, your own yard, or, if in town, on top of your house, in a shade. You will catch bees in proportion to the number of hives you have out.

Minnesota Meeting.—Following is a program of the Minnesota Beekeepers' meeting which is to be held in Minneapolis Dec. 3 and 4:

WEDNESDAY FORENOON.

9:00—Hour for getting acquainted and "seeing the Treasurer."
10:00—President's address.
10:30—"How My Bees Produced 30 Tons of Honey this Season"—E. L. Hofmann, of Janesville.
11:30—"Sweet Clover as a Honey Producer"—R. F. Hall, of New Auburn.

WEDNESDAY AFTERNOON.

1:30—"Carniolans *vs.* Italians"—Rev. Francis Jager, St. Bonifacius.
2:30—"The Honey-Producing Plants"—Prof. Edwin J. Freeman, of the State Farm School.
3:30—Question Box.

WEDNESDAY EVENING.

8:00—Popular Program—Rev. Francis Jager in charge.

THURSDAY FORENOON.

9:00—Wintering Bees"—Dr. L. D. Leonard, of Minneapolis.
10:00—"Why We Use Smoke on Bees"—Hamlin V. Poore, of Bird Island.
11:00—"Suggestion in Regard to Organizing a Honey Exchange"—L. F. Sampson, of Excelsior.

THURSDAY AFTERNOON.

1:30—Report on State Fair—Scott LaMont, of Park Rapids, Superintendent of Apiary Department.
2:00—Report of the Inspector of Apiaries—J. A. Holmberg, of St. Paul.
2:30—Business Session—Election of Officers.

England Short of Honey.—"Honey Shortage in England" is the title of a report by Vice Consul Loop in London, writing for the Daily Consular Reports. The reason for the shortage is attributed to the prevalence of Isle of Wight disease throughout the country, which has in many instances wiped out whole apiaries. Most of the honey imported by England comes from the British West Indies with the United

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States second.

In another report in the same pamphlet mention is made of the success of an Australian beekeeper in shipping his honey to England. Five tons in the first shipment brought the shipper 7 cents per pound in Sydney, Australia.

Program of Iowa Meeting.—The second annual convention of the Iowa Beekeepers' Association will be held in Des Moines Dec. 10, 11, and 12. No progressive Iowa beekeeper should fail to attend this meeting if it is at all possible for him to do so. The Secretary is pleased to be able to submit a *rousing* program as follows:

WEDNESDAY, DECEMBER 10.

10:00. A. M.—Address of the President—Frank C. Pellett, of Atlantic.
Report of Secretary—S. W. Snyder, of Center Point.
Report of Treasurer—C. H. True, of Edgewood.
Reports of Standing Committee.
Appointment of Committees.
1:00 P. M.—"Some Side Lines on the Farm"—J. W. Jarnagin, of Des Moines.
"Marketing the Crop"—W. P. Southworth, of Sioux City.
"Beekeeping as a Business"—B. A. Aldrich, of Smithland.
"Selling Direct to the Consumer"—J. L. Strong, of Clarinda.
Ladies' informal meeting in separate room in charge of Miss Nina Secor, of Forest City.
8:00 P. M.—"Beekeeping in Europe"—C. P. Dadant, of Hamilton, Ill.

THURSDAY, DECEMBER 11.

9:00 P. M.—Election of officers.
"Arrangement of Apiary"—C. H. True, of Edgewood.
"Sweet Clover—What It Will Do for the Farmers and Beekeepers of Iowa"—Frank Coverdale, of Delmar.
1:00 P. M.—"Beekeeeping as a Side Line and the Fun of the Thing"—Hamlin B. Miller, of Marshalltown.
"Modern Methods of Caring for Extracted Honey"—E. R. Root, of Medina, Ohio.
8:00 P. M.—"How May We Increase the Consumption of Honey?"—Eugene Secor, of Forest City.
"Increase"—J. W. Bittenbender, of Knoxville.
"Advertising"—Dr. A. F. Bonney, of Buck Grove.
"Comb or Extracted Honey?"—C. L. Pinney, of LeMars.

FRIDAY, DECEMBER 12.

9:00 A. M.—"Beekeepers' Legal Status"—Russell E. Ostrus, Attorney for Iowa Beekeepers' Association, of Des Moines.
"Treatment of Disease"—Edward G. Brown, of Sergeant Bluff.
"Helps and Hindrances in Dealing with Foul Brood"—J. W. Stine, of Salem.
1:00 P. M.—Address, Prof. W. J. Kennedy, of Ames.
"A Season's Work"—F. W. Hall, of Colo.
Exhibits—R. H. Longworth, of Polk City.

Chicago-Northwestern Meeting.—The meeting of the Chicago-Northwestern Beekeepers' Association will be held at Chicago on Dec. 17 and 18 at the Great Northern Hotel, Room L, 36.

The Secretary has arranged a program with papers by several of the leading beekeepers. As this has been a good year, beekeepers should make every effort to attend. Chicago is centrally located, and we should have a good attendance from Wisconsin, Michigan, Indiana, Minnesota and Illinois.

A cordial invitation is extended to every one. If you do not receive a card asking you to attend, this notice will be an invitation.

L. C. DADANT, *Sec.*

League Fund Exhausted.—In September I advertised in all the bee-papers published in the United States and Canada that I would send Honey Booklets to all who sent postage. Soon I was flooded with letters from all over the States and Canada, and several foreign countries, including postage for various sizes of packages. As fast as I received them, I booked every order and began sending them until my 5000 books were gone. I then got another lot, and they were soon gone. I then had to wait for 30,000 more to be printed, and they were delayed two weeks by freight. Over 600 orders for the books came during this delay, some asking for 100 copies, and many wanting more.

The League Fund has been exhausted in printing, postage, drayage, freight and help. I have 245 orders that I cannot supply, and just a sample copy I can send with return postage to each. I am sorry that I cannot supply all orders—and more are coming daily. Certainly the thousands of books I have sent, if placed in the hands of good cooks, will create a great demand for more honey.

I bought these books of the A. I. Root Company, of Medina, Ohio, and I believe you can buy them for $4.50 per 100 copies. With these orders were reports for 1913, and generally beekeepers were selling most of their honey in home markets. Comb honey at 15 to 23 cents. Extracted at 8 to 10 cents.

I wish you success in wintering your bees, and hope that 1914 may be your best season.

N. E. FRANCE.

Missouri State Meeting.—The annual meeting of the Missouri State Beekeepers' Association will be held Dec. 16 and 17, at Excelsior Springs, Mo. The program follows:

FIRST DAY, 2:30 P. M.

Appointment of committees and report of Secretary.
Address of President.

8:00 P. M.

Paper—"Beekeeping as a Business"—R. A. Holekamp, of St. Louis.
Address—"The Good Bees Do for Humanity"—Dr. A. D. Wolfe, of Parkville.
Paper—"Beekeeping in Italy and France"—C. P. Dadant, of Hamilton, Ill.
Speech—"Wit and Humor of the Bee and the Beekeeper"—J. T. Martin, of Liberty.

SECOND DAY—9:00. A. M.

Paper—"Beekeeping in South Missouri and Northern Minnesota"—H. F. Strang, of Cleo.
Address—"How to Avoid Getting into Trouble with Your Neighbor on Account of Your Bees"—M. E. Darby, of Springfield.
Address—"How to Beat 'Em if You Do"—A. T. Rodman, of Kansas City.
Papers—"Rearing Good Queens"—E. E. Lawrence, of Doniphan, and L. E. Altwein, of St. Joseph.
Address—"Mistakes of an Old Beginner"—Clay Foley, of Missouri City.
Paper—"The Best Way to Increase"—H. C. Gadberry, of Miami.

1:30 P. M.

Address—"A Commission Merchant's Experience in Handling Honey"—C. C. Clemons, of Kansas City.
Address—"Experiences of a Supply Dealer"—C. E. Walker, of Kansas City.
Address—"How to Get a Good Foul Brood Law"—J. W. Rouse, of Mexico.
Paper—"History of the Missouri State Beekeepers' Association"—W. T. Carey, of Wakenda.

J. F. DIEMER, *Sec.*

BEE-KEEPING FOR WOMEN

Conducted by MISS EMMA M. WILSON, Marengo, Ill.

Season at Marengo—The Best Ever

At the opening of the season there were in Dr. Miller's apiary 83 colonies. Of these, 72 were devoted to the production of section honey, leaving 11 for extracting combs. These 11 were mostly the poorer ones. May 12, 2 new colonies were made, and others later on, the season closing with 101 colonies. One of the colonies made May 12, worked sections, making 73, but 72 was the spring count of the comb-honey colonies.

With one or two exceptions the 72 were strong and in fine condition in spite of the presence of some European foul brood. May 6, there were 57 colonies having more than 4 frames of brood each, which we count fine for this locality. May 1, the bees had more than they could do on fruit bloom and dandelions. May 27, fruit bloom was over, and just at that time appeared the first blossoms on white and alsike clovers. May 29, we gave the first supers. We had in advance 660 supers filled with sections, ready to put on the hives.

White clover was so promising that it was suggested to Dr. Miller that more sections might be needed. He scouted the idea. He said, "There is no need of more than 7 supers per colony, spring count. Allowing one empty super to each colony at the close of the season, that leaves an average of 6 supers to be filled by each colony, making 144 sections. We have 660 supers ready, or a little more than 9 supers per colony. We never had anything like that, and never will have. No matter how hard the bees are working now, there are always setbacks, as you will see, then there will be empty supers to burn at the close of the season."

June 19 the first super was finished, and June 24 we began taking off. But we put on more than we took off, so that there were 260 supers on the hives June 25; 291, June 27; 317, June 30; and still more afterward. In the meantime, importunities continuing, Dr. Miller ordered 5000 more sections. He said: "I am not ordering these on my

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own judgment; we don't need them; but my peace of mind is worth something, and it will not be a very expensive matter to have 5000 sections lie idle until next year.

But the bees must have had an inkling that a fresh lot of sections was on hand, for they seemed to put in honey harder than ever, and by July 30, the last of the 660 supers were on the hives, and 15 supers more out of the last 5000. On the same date Dr. Miller ordered another 5000, not needing any great urging thereto. He had lost all confidence in precedents, and didn't know what to expect.

July 8, there had been 367 supers on the hives, and for some time after that date the number changed but little, because about as many empty supers were put on each round as the number of full ones taken off. The long, even flow is somewhat indicated by the number of supers on the hives: July 8, 367; July 30, 368; Aug. 18, 314. July 30, there were 2 hives having on them 3 supers each; 20 with 4 supers; 31 with 5 supers; 15 with 6 supers; 3 with 7 supers; 2 with 8 supers; averaging a trifle more than 5 supers each. When one looked at those supers piled up on the hives, one could not help wondering what difference it would have made on the crop if each colony had been restricted to 2 supers at a time according to the practice of some.

About the middle of August white clover seemed to be letting up, although it was hard to tell very much about it. There was no cessation of flow, but a seemingly gradual change from white clover to sweet clover and heartsease, the latter almost as white as white clover, although generally considered amber.

September 22, we took off all supers, putting back over a few hives some sections that were filled but not quite sealed, and putting over these a lot of sections partly filled but not sealed. It was a fizzle. The bees didn't take our view of the matter, and emptied the honey out of the unsealed cells that we expected them to finish.

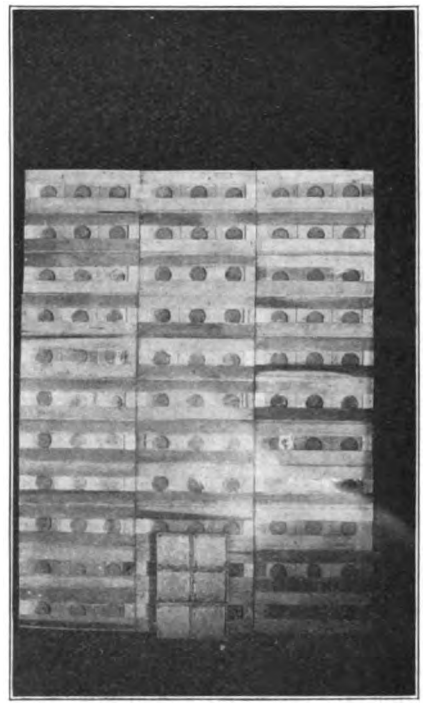
The weather throughout the season seemed to be made especially for the bees. It was not too dry; it was not too wet. When it rained it was generally in the night, clearing off in time for the bees to begin work in the morning. Up to Sept. 20, there were only two days (wet) when the bees showed an inclination to rob. When we took off supers, we could let them stand open on top of the hives all day. September 6 some scraps of honey were placed over the bees' watering-pail for them to clean up. It stayed there all day untouched. A few bees visited the pail, but they didn't want honey; they wanted water. The honey was then placed in front of a hive, and it was more than a day before it was cleaned up.

Careful account was kept of the honey taken, and each colony received the proper credit. During most of the season the crediting was an easy matter. No super was taken until it was full, and so 24 sections were credited. Often, however, two full supers were taken at a time, sometimes three, and in a very few cases four. But toward the last of the season the crediting was not so easy, when some sections in a super were filled and others partly or entirely empty. If a super had credit for 15 sections, that doesn't mean that 15 sections were entirely filled, but that all the honey in the super would be enough to fill 15 sections.

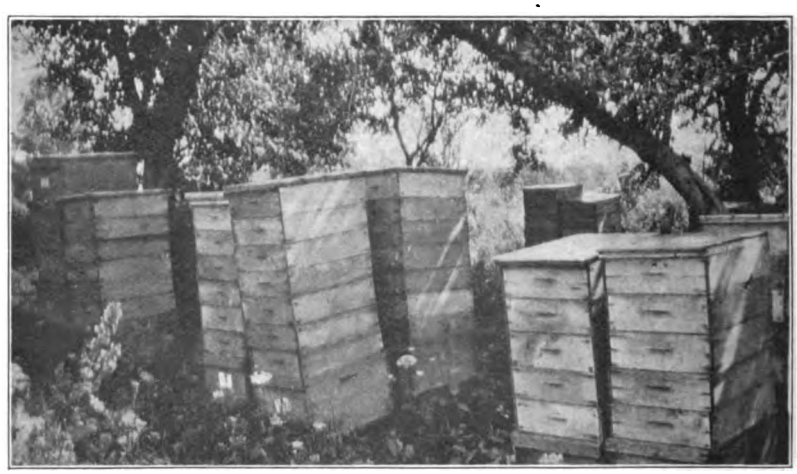
When everything was footed up at the close of the season, quite a variation was found in the yield of different colonies—a thing not by any means to be proud of. Number 39, which was queenless a long time, and exceptionally vicious about accepting a queen, gave 68 sections. (That's 68 *sections*, not pounds, the account being kept altogether in sections throughout, the average section weighing somewhere around 14½ ounces.) Next to this came a colony with 112 sections, and from that it rose by degrees to 198 sections, there being just 10 colonies in all that gave less than 200 sections each. Then came 23 colonies yielding between 200 and 250 each. Then 19 between 250 and 300, and 15 from 300 to 360. The last and best 6 colonies gave respectively the following numbers: 383, 384, 384, 390, 395, 402. The average for 72 colonies, spring count, was 266.47 sections each, the total being 19,186 sections. (How much extracted there will be is unknown at the time of this writing, as it is yet in the comb. But that is a separate affair.)

In all the years previous to this, the largest number of sections from a single colony was 300, and there was but a single instance of that kind. This year there were 20 colonies that beat that, one of them beating it by 34 per-cent.

Why did we do well? Perhaps the largest factor in the case was the phenomenal season. Added to this were bees improved by constant selection for best gatherers; surplus room was always in abundance; and we gave the



FROM NO. 4 WERE TAKEN 402 SECTIONS, FILLING 33 12-SECTION SHIPPING-CASES AND LEAVING 6 SECTIONS OVER.



SOME OF DR. MILLER'S HIVES WHEN THE CROP WAS ON.

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very best care and management we knew how to give.

Will we ever do as well again? Very unlikely; but who knows?

Half-Acre Opportunities

I believe in "half-acre opportunities for women," and will give my experience with bees.

Twenty-four colonies, fall count, have produced 2800 sections of comb honey, an average of 116 sections per colony; the highest is 288 sections from one colony. This colony filled one super in three days. This is all white alfalfa comb honey, as supers were not put on until June 14. The flow lasted until about the middle of September.

I use the 8-frame Langstroth hives, changing the old hive to a new place, and putting the swarm on the old stand. Twelve colonies in 1912 averaged 100 sections. This is all sold, and I am unable to supply the demand.

(Mrs.) L. V. Melvin.

Caputa, S. Dak.

Thanks for your report. If you can have an average like that every year, or even half as much, it would rather look as if you had full acre opportunities.

Dr. Miller's Apiary at the Close of the Harvest.

Far Western Bee-Keeping

Conducted by Wesley Foster, Boulder, Colo.

The Rising Sweet Clover Tide

The value of sweet clover as a forage crop is rapidly being recognized. The Sept. 20 issue of The Country Gentleman contains a well-written article which says that sweet clover is destined to become a rival of alfalfa in many soils, and in some soils is superior to alfalfa.

The writer says: "Sweet clover has proved of real service in worn-out upland farms, for it is a soil renovator as well as a flesh former, a milk maker and a money maker. It will thrive where even weeds will not grow. It prospers on the best soil, and will produce abundantly on barren wastes. It is the greatest drouth resister of all forage plants; its roots penetrate the hardest ground, even taking hold in crevasses in rocks.

Sweet clover is destined to be one of the greatest crops on the dry lands of eastern Colorado and western Nebraska and Kansas. It has long been a question whether these dry lands would ever be fit for anything but cattle ranges; but farming methods and special forage crops, sweet clover included, are being adapted to the special conditions. Prof. P. G. Holden, who is with the extension service of the Rock Island system, has just completed a trip through eastern Colorado. He advocated the growing of sweet clover on the dry land. He also made strong pleas for silos, and more of them.

At a recent luncheon given by the Denver Real Estate Exchange, among the speakers were Mr. R. A. Pence, who said in part: "The growing of sweet clover for cattle feeding purposes has become a flourishing industry in the dry land communities in recent years. On the Kubanker ranch, 40 miles east of Denver, and 7 miles from Strasburg, there is a splendid example of sweet-clover feeding to cattle."

Prospects for Next Year

A more propitious fall could not have been designed to help the bee men. We have had a long warm season with very late frost. Alfalfa and sweet clover have made a fine fall growth, and both should winter in the best condition, as we have had ample rains. The soil is moist, and sweet clover is still green close to the ground.

The seeding of sweet clover was very heavy, and the spread of it in waste places has been going rapidly on. Next year should see a large growth of this plant.

The frequent rains have doubtless been very destructive to grasshopper eggs, so we hope and expect to be bothered with this pest very little next season.

While the honey crop in Colorado has been larger than in a number of years past, the severe drouth in the States east of us has created a market for Colorado honey, as well as other produce. Nebraska, Kansas and Oklahoma are taking large quantities of honey this year.

Poor Wintering of Colonies Affected With American Foul Brood

It has been a common experience among those who have tried to winter foul-brood colonies, that they do not winter well, especially if there is much diseased brood in the hive. I have seen very strong colonies, with a few foul cells, go into winter quarters and perish before Christmas. Other colonies would enter the winter well, but would die off rapidly before the coming of settled cold weather. There are two reasons that very largely affect the result:

First, is the lack of a large proportion of young bees, the late broods mostly dying from the infection.

Second, and I think the most important reason, is that a foul-brood colony does not cluster upon its combs and form a compact brood-nest. The bees are found more scattered through the hive. They are disinclined to bunch up in a compact ball. Perhaps it is the odor of the decaying brood that is offensive to the bees.

It is a wise rule to winter no foul-brood colonies unless only a half-dozen diseased cells are found.

County Agriculturist Wanted

For a number of years the chief agricultural and horticultural counties of Colorado have had horticultural inspectors and also apiary inspectors. The County Agriculturist movement is now sweeping over the country. This is a strong proof that the people, as a whole, are realizing that agriculture is the basis of national prosperity. Why create another county officer on county pay? Why not combine the office of county apiary, horticultural inspector and agriculturist in one individual? The county agriculturist must be a versatile individual, but he can lend a great deal of aid to all classes of producers if he is the right man.

So bee men among our younger readers who are ambitious for some such position, prepare yourselves at some Agricultural College. A County Agriculturist must be a good organizer and have the confidence of the farmers. It is not required of him that he be an expert along special lines unless agricultural enterprise is greatly specialized in the county where he is to work. But

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if he does not know all lines he must know where to get experts for specialty work.

Moving Pictures

I am a kodak and camera enthusiast. To take pictures is my delight. A clump of trees, a lane, some grassy plots, fields with cattle grazing, and the mountains in the background; these are things I like to arrange pleasingly on my film. And often it takes long searching to find the right spot where a *real picture* can be had.

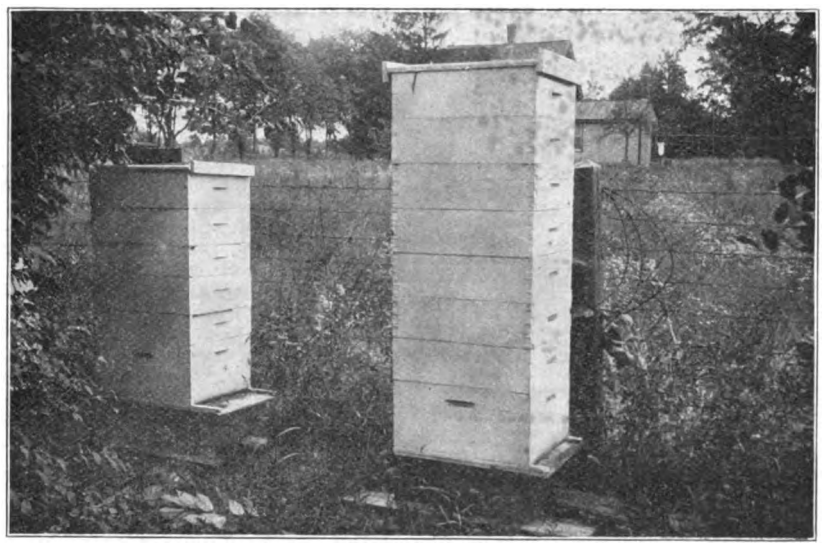
I also enjoy looking at pictures. It would be hard to say how much of my education has come from them, but I dare say more has come that way than in the four years spent in high school.

Several dollars each year, and many hours, are spent looking at the movies—I've seen billions of them without doubt. I will not apologize for their shortcomings—the National Board of Censorship can do that.

Every new *rage*, as Mr. Scholl calls this one, has its critics, and they need them. The worst thing about the movies is the commercialism of the thing; the race for the nickels in Denver; the dimes in Boulder; the quarters in Telluride; and in Reno, I suppose they charge you a dollar to see the movies.

I object, however, to paying my good nickel, dime or quarter to see a dyspeptic husband abuse his good wife's cooking, throwing dish after dish on floor, and almost breaking up the home before the film is run through. Everything comes out sweet in the home (wrong with me) when the wife discovers that "Buncombe" brand products are all that is needed to make her cooking faultless. Perhaps "Buncombe" products have saved many a home from dissolution, but I don't want to pay to be told so in a moving picture. And I would just as strongly resent it if I were told in a picture (after paying my dime) that honey was the only sweet fit to enter a human stomach.

People will be entertained and instructed if they are shown in moving pictures the life and work of the bee, and how honey is produced and prepared for market, but don't make any special plea—it will defeat its own end.



THE FRONT COLONY FILLED 224 SECTIONS THIS SEASON. IT BELONGS TO H. F. EDSALL, OF HAMMONTON, N. J.

BEE-KEEPING IN DIXIE

Conducted by J. J. WILDER, Cordele, Ga.

Pleasant Emotions

I hope no one will think any the less of me if I express myself on my situation as a beekeeper from a business standpoint.

I am experiencing a general good feeling over business affairs, and the result is that my ambition is several notches higher than it ever has been. Things are going at a higher pitch for the approaching season.

It was about the middle of October when I made my last round for the season to my Suwanee river apiaries. The general manager and foreman, with all the hands, met me with smiles and glad hearts, and each one gave me a hearty hand shake. In every way they could they showed me kindness and love. When I reached their homes I found that they had made great preparations for me, especially in the way of something to eat. In every particular my stay among them was a feast and a joyous occasion. One young man, who has been with us but one season, and who was recently married, said: "Mr. Wilder, I want to stay with you in the bee-business as long as I live." We got together and had a convention such as I never experienced before.

Practically all the season's work was covered in conversation, in questions and answers, each one telling the most serious problems that had come up during the season, and how he solved them; and if such problems come up in the future he could solve them in a better way, etc. The result was that we were all made wiser. When we talked of the future side of business, they all wanted to make a big increase next season, and those who did not have 600 or 700 colonies in their care, wanted to reach that number as quickly as possible. Some of them wanted to run as many as 1000 colonies, and to this end they are now making preparations.

Their orders for the necessary supplies are placed, and some of them are large ones, too, consisting of over a half carload of goods. Our little beehive plant has been running full time for over three months, that we might keep up with orders and give them the supplies so they can have them set up in ample time for next season. The business situation looks better and brighter than ever before.

Not Much Difference in Locations

The more I learn about the honey-flora, or the amount of honey secured in different locations all over our country, the more I am convinced that there is not much difference in locality as regards the amount of honey secured. If beekeepers would recognize this they would be more content. There are too many discontented and restless beekeepers wanting to move here or yonder to better locations, where they can keep more bees and produce more honey per colony; hunting or desiring to hunt "the good spot" for the business when they are already located in as good a spot as there is.

I know a good beekeeper who for years was not pleased with his present location, and said that it was the poorest one in the world. He made great efforts to get out to some "better place," but finally finding that he could not make a change, "he took off his coat and rolled up his sleeves" and resolved to make the best of the situation. And so he did, scattering apiaries about over the country. Today he is doing well, making money every season, and says that he is perfectly contented, and has as good a location as he could find.

I know a number of old apiary sites from which the bees were moved years ago, as the beekeepers said they were in poor locations. Since then other beekeepers have come into the same sections and located apiaries on the same old sites, and they are doing well. I dare say that it is a fact in nearly every case where a beekeeper wants to move to some good spot, that the difference in the net returns from his bees, located there for years, would not pay

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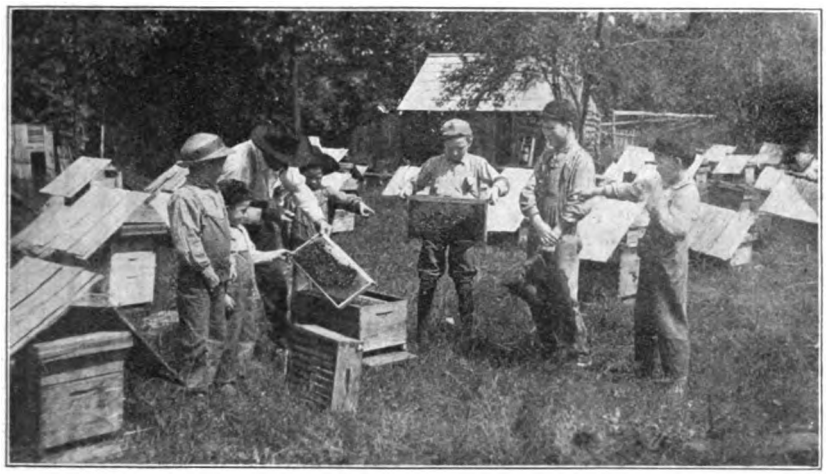

T. C. NALL GIVING THE BOYS THEIR FIRST LESSON IE BEEKEEPING.
" Ten years ago I bought a little fruit farm here in Chester, Ark. In the deal I got a few colonies of bees in old "log gums." As I could do nothing with them in the logs, I made some hives, the first I ever saw the inside of. I now have 300 colonies in five yards. It makes going easy for me."

T. C. NALL GETTING HIS PAY FOR TEACHING BEEKEEPING

moving expenses.

Many times these good spots do not prove to be so. I know of cases where apiaries were moved for miles across the country in cars and located where great crops of honey were reported nearly every year. In many instances the result was a miserable failure, the good beekeeper became discouraged, let his bees go to nothing, and quit the business. This is too often the case, and beekeepers should know what they are doing when they make the change. You know the conditions existing in your present location, and you are not apt to know them elsewhere.

A Suggestion

There is a great number of beekeepers scattered over our country who have acquired enough knowledge of our business to write intelligently about it. I want to suggest that we write something that will interest and instruct the public along the line of our business, and send such articles to the editors of our county and State papers. They will be glad to give such articles space. This will go a long ways towards educating the people in two things; the consumption of our product and the building up of our industry. Photographs of apiaries or of beework could be used with good articles. Only a few years ago I knew a man who started writing in this way, and today he has a good job as an editor.

The Winter Problem

During the winter months there is always more or less uneasiness among beekeepers as to whether bees are wintering well. Especially is this true of beginners, or those who do not know the condition of their bees, or the amount of stores they consume. To these I want to say that bees do not consume much stores the first part of winter, but the latter part and in early spring they consume much more because they are rearing young bees in great numbers. It will be time enough then to examine them and see how they have wintered and are progressing.

There are many beekeepers who remove but little honey during the season, for fear that their bees will perish during winter. This is a mistake. The honey in the supers should be removed; for, as a rule, they have plenty of stores in the brood-chamber or bottom story to tide them over winter and until the honey-flow or stores are equalized at the approach of spring.

In the South this surplus honey can be removed any time during the winter, the supers removed, cleaned, and made ready for next season. If the supers are filled with fall honey, or honey that will quickly granulate, it would be better to remove it as it is sold, or it can be left on the hives and removed early next spring, or as soon as settled warm weather comes.

Home Apiary of Mr. J. K. Isbell, of Wewahitchka, Fla.

This apiary is located on the banks of the Chipola river in West Florida, where beekeeping is the principal industry. It is one of the best kept yards in the entire South. He has two similar yards with 250 colonies in each, and he devotes his entire time to bees, hiring help when his crop of honey is to be removed. Mr. Isbell removes the frames of honey as fast as they are completed or capped; therefore, he does not have to have so much storing room. His apiary consists of 2-story

APIARY OF J. K. ISBELL.

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hives, one story for the brood-chamber, and the other for surplus. He runs entirely for extracted honey, which, he says, pays best.

Mr. Isbell believes in shading the hives well, either artificially or naturally, and has a large alighting-board for the tired, heavy-laden bees. He keeps a record of each queen, and requeens each colony every two years.

Get Ready for a Bumper Honey Crop Next Season

It is none too soon to get supplies for next season's use, and set them up so as to have them in perfect readiness by the time they are needed. If reports are true, all bees are heavy with stores, owing to a good, late honey-flow lasting until frost, and as a rule bees are stronger than usual. This means that we will undoubtedly have a bumper honey crop next season.

As a general thing beekeepers do not order enough supplies for the approaching season; not enough hives for increase or for swarms, thinking, perhaps, that the bees will not swarm, or something will happen that they will not need them. This is a great mistake, for it is always best to have a few hives left over, and not run the risk of losing swarms for lack of hives. Another deplorable fact is that there is rarely enough storing room in the supers provided, and the result is that much honey is lost.

I know this to be the case since visiting beekeepers over the country. They usually buy 1½-story hives, having but one super per colony when they should have not less than three. Some colonies will not need so many, but others will need more, and this amount is small enough even for seasons when our honey-flow is not heavy.

A Swarm! I Can't Ring a Bell. What Must I Do?

Convention Proceedings

Synopsis of Illinois State Meeting

On the morning of Nov. 5 the Illinois State Beekeepers' Association met at the State House in Springfield. All the officers were present.

The resolution passed by the association in 1912, asking the Board of Trustees of the University of Illinois to establish a bee department and experimental station at the University had not been acted upon at this date. President E. J. Baxter, however, who had called upon the President of the University and the head of the Bureau of Entomology, reported that a bee department was favored, and as soon as the matter could be properly taken up it would be favorably considered. The State Entomologist, however, said he would not wish to take up the inspection work of brood diseases in the State, as it is in good hands at this time.

The report of Foul Brood Inspector, Mr. A. L. Kildow, showed that there was about 50 percent increase in the number of colonies of bees in the State, and foul brood diseases were being checked, and in many places entirely eradicated. European foul brood in the eastern part of the State is not yet under control, but that section is to be thoroughly inspected before another year passes. The inspection work was handicapped the latter part of the season on account of lack of funds. The State treasury being empty, the Foul Brood Inspector was notified not to spend any more than was absolutely necessary the latter part of the summer. All the funds, however, will be available early next spring, and a great deal should be accomplished.

Through the efforts of Pres. Baxter, Sec. Stone, and Senator Compton, the appropriation for foul brood inspection was increased by the Legislature at its last session from $1500 to $2000. The State Legislature realizes that the beekeeping industry is an important one.

The program was to consist partly of competitive papers for which four prizes were offered, but only one paper was presented and read. This was by Jas. Poindexter, of Bloomington, and a good discussion followed it.

Action was taken to get one or more prominent beekeepers and speakers from outside the State to make up a strong program for next season. If possible to secure him the principal speaker will be Mr. N. E. France, of Wisconsin, whose value as a practical beekeeper was greatly enjoyed at the 1912 convention.

A photograph was taken during the morning session, but only some 20 members of the 30 or more in attendance were present.

The secretary of the Eastern Illinois Beekeepers' Association, Mr. H. S. Duby, asked that their proceedings be printed as part of the Illinois State Report, and he also asked for assistance from the Illinois State Association in the way of paying expenses of one or more prominent beekeepers to attend their convention in eastern Illinois. No action was taken on these matters. More organizations of beekeepers in Illinois ought to exist with field days. Instructions, especially on brood diseases, should be given out freely. In some sections of the State beekeepers do not recognize the good intention and value of the work of the inspector.

The question box furnished a large part of the program, and many live questions were threshed out. Conclusions on outdoor wintering were: Good protection from intense cold and cold winds; sufficient ventilation without draft to the bee cluster, and absorbent material directly above the cluster. Any method of packing used just above the cluster, forming a strictly sealed covering was condemned.

The question of the National Association, as presently managed, was brought up, and with but few exceptions the members were pleased with both the advantages the National Association offered and the Beekeepers' Review. The work formerly done for the National by N. E. France, as Manager, was warmly commended.

Getting reports of the United States honey crop through the Bureau of Statistics was discussed. The Department of Agriculture has sent out letters asking for suggestions on this matter. A thorough and reliable report of the honey crop, such as there is now made of the grain crop, would be of great benefit. Steps were taken to ask that the Department of Agriculture get the information necessary to facilitate them in making an intelligent canvass and report.

The matter of placing bees on the tax list is quite important. At present bees are taxed as miscellaneous property, and no doubt many colonies are not assessed. It will give more prominence to our industry, and make it easier for the beekeepers of Illinois to get the appropriations and other favors which they may need and ask of the Legislature.

The election of officers placed the

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same men in the chairs of President, Secretary and Treasurer; and Mr. Aaron Coppin, of Wenona, was made 1st Vice-President. Mr. W. B. Moore was elected delegate to the National convention.

NOTES FROM ABROAD

Notes from Abroad

BY C. P. DADANT.

WELL, dear reader, I am again writing from my desk at home, after four months of travel. The 50th anniversary of my first arrival from Europe, when a child, almost coincided with my return home, for I landed in Hamilton, Ill., on the 19th of October, 1863, and my wife and I landed in New York from our long trip on the 18th of October last. Fifty years of residence in a country ought to give one a fairly good idea of the country. I am glad to say that we returned to America with the greatest satisfaction, and with the feeling that it is the best country of all, even though it is behind Europe in many things. Mrs. Dadant, of course, being born here, did not hold a different view from mine.

In glancing over the letters written to the Bee Journal from abroad, I see that I can confirm what I have already written about the Italian bees. All along our route, the verdict was the same. The Italian bees are more active than the common bees; they rise earlier, stay out later, are fully as prolific, if not more, and prove better wherever the climate permits them to follow their inclination. But there are spots, and some parts of Switzerland are of that kind, where the very activity of the Italian bees is to their detriment.

I cannot do better than to give here a comparison which I have expressed to a number of beekeepers, and which illustrates the conditions they face in some cases and the results. Even though this illustration is taken from the vegetable world instead of the animal kingdom, the reader will plainly see the point.

When I built the house in which I now live, here at Hamilton, I planned to plant a number of hard maples, or sugar maples (acer saccharum), in the front yard. These, I thought, I could secure from the woods around, since the sugar maple grows naturally here. But I could get only 6 good trees, and I needed 21. So I asked a nurseryman to supply me with the extra 15. These were shipped from Wisconsin. As Wisconsin is 2 degrees or more farther north than we are here, I felt quite sure that the trees from that State would be fully as hardy as the local trees, and would thrive. But the result was exactly the reverse of what I thought. As soon as a few warm days come, in early spring, the Wisconsin trees evidently take it for granted that the winter is over, and they send forth leaves and stems. After a few days a frost comes that wilts all this growth, and the trees are set back to such an extent that they can make but little growth. The home-grown trees, however, are so acclimated that they do not trust the first warm days, do not hasten to send forth their growth, and when they do grow, all danger of frost is over. So the trees from the colder country are worse off than the others because they trust an unknown climate.

I believe that where the Italian bees fail, it is for a similar reason. They are accustomed to the climate of Italy, and their instinct prompts them to go out at the first ray of sunshine. But in some parts of Switzerland, as I pointed out in my October letter, the bees that venture out on doubtful sunny days are often unable to return. The very activity of the Italian bees thus turns against them. Similarly, when a warm spell during the latter part of summer induces them to breed, they spend too much in rearing brood, while the local bees mistrust the short fair weather and practice economy. The climate of the Mississippi valley is certainly more similar to that of Italy than to that of the cool valleys of Switzerland. So the Italian bees are suitable for our climate, and we may still be sure that they are preferable to the common bees, or even to those of Switzerland.

I heard very favorable comments concerning the Carniolans and the Caucasians. But the universal verdict was that the Carniolans are very great swarmers. Perhaps this habit could be bred out by the use of large hives, but if we wish to succeed we had best begin with the races that are nearest to our ideal.

I will have more to say concerning the Italian bees when describing the apiaries of central Italy. I saw there, in Bologna, at the home of Mr. Enrico Penna, the most perfectly kept apiary that I have seen anywhere, all things considered, and I propose to give our readers a full account of it. But so many have asked me to write an account of our entire trip, not omitting even the sight-seeing, that I feel bound to acquiesce. Thus, if my readers find columns that do not contain any bee-news, in these "Notes from Abroad," they will please remember that it is in response to the wishes expressed by many, of a thorough account. I have a number of photographs, landscapes, apiaries, bee-meetings, etc., which will illustrate these notes as we go along.

When we left the shores of America, in June last, we found in our cabin, at the departure of the boat, some 25 farewell letters, from our friends on this side, and an immense bouquet, an armful of roses. We wanted to mention this because we still feel the emotions which arose in our breasts at the sight of such fine tokens of friendship from all around. If any of you have dear friends leaving for far-away shores, you cannot please them better than by anticipating their departure with some such farewell.

Arriving at Havre on July 2, we at once took the special train for Rouen. As the train slowly pulled out of the docks, a swarm of ragged children followed it, holding out their hands and begging for coppers. We were very indignant at this sight, but were told that the New York arrivals are the cause of this begging, because the Americans amuse themselves throwing small pieces of money to the children to see them tumble over each other. This is a bad practice, and ought to be stopped. It actually creates beggars by offering a reward to begging. The practice of begging is much lessened in Europe; we did not see a single beggar in Switzerland, very few in France, and it is time to put an end to it everywhere.

I will not say anything about our visit in Rouen. The August number contains a sufficient account.

We reported having visited the office of L'Apiculteur, of Paris, the principal journal of apiculture of France. Very few people know that this is now the oldest periodical on bees in the entire world. The oldest was the Bienenzeitung of Germany, but I am informed that it has ceased its publication, there being now several other journals on bee-culture, in that progressive country. So L'Apiculteur is now the senior of all the bee-journals, our own American Bee Journal being next to it in age, and the oldest in the English language. L'Apiculteur is now 57 years old. Its first editor, Hamet, and my father had very strenuous discussions upon the advantages of the movable-frame hives and the modern systems of bee-culture. It was Hamet who called the honey extractor "a useless toy." But he has been dead many years, and his successors, Messrs. Sevalle & D'Autemarche believe in progress. The president of the "Société Centrale," the National bee association of France, is Mr. Bonnier, a great botanist as well as a beekeeper of note. He has lately published a "Nouvelle Flore," and an "Album De La Nouvelle Flore," which contain descriptions and cuts of the flora of France. He is now publishing a "Flore Complète" of France, Switzerland and Belgium, with colored plates of the finest finish. Two volumes of this have already appeared, and I have secured them. One feature of his botanical works is that he never fails to mention the plants that are useful to bees. This is valuable to beekeepers everywhere.

We called also upon Mr. Condamin, the publisher of "L'Apiculture Nouvelle," which is really the representative of American ideas in France. This magazine, which is only 8 years old, has begun on a progressive method at once, reproducing many of the cuts that are published in Gleanings in Bee Culture. We are informed that it has many readers on this side of the Atlantic, some 500 of whom are French Canadians. Those of our friends who were kind enough to express the wish that the American Bee Journal be also published in the French language, are respectfully referred to this publica-

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tion, which would probably give them entire satisfaction.

I have a cousin in Paris, who is exactly of my age, and with him we visited some of the monuments, but it would tire the reader to tell him about the beautiful things in Paris. He can read descriptions of this kind in any travel magazine or book. We prefer to take him with us to the by-ways that the average tourists does not seek.

We must, however, give a word to the National holiday of France, the 14th of July, the anniversary of the destruction of the Bastile, the political prison and fortress whose downfall sounded the knell of royalty in France, at the end of the 18th century. The French are lovers of pleasure, and this disposition showed clearly in the preparations for the National holiday during the two days that preceded it. Flags were hoisted, rows of colored electric bulbs were hung over the monuments, and at night many streets were closed to vehicle circulation to permit of public dances right in the middle of the streets. The increase of visitors and of traffic was such that we concluded not to remain, for we dislike crowds. So we departed by rail on the very morning of the 14th.

CANADIAN BEEDOM

Conducted by J. L. Byer, Mt. Joy, Ontario.

Wintering Prospects in Ontario

Bees, I believe, are going into winter quarters in first-class condition. Our own are exceptionally heavy in the brood-nests, and our feeding bill has been lighter than usual. Much of this honey is from buckwheat, but as it was gathered in a slow flow, in hot dry weather, and well sealed, I have an idea that it will be first rate for winter stores. In no case have I taken any from the brood-nests, even if colonies were so heavy that I gave them no sugar syrup at all.

Second-Hand Cans

Mr. Diemer's experience with second-hand 60-pound cans is typical of what often occurs when these used tins are put on the market again. And the worst of the thing is that the buyer of the honey stored in such tins is generally the loser—not the fellow who sold the goods. As to the bees being so plentiful in the honey as to make it easy to tell the race kept by the beekeeper, that is quite a scheme, pretty much on a par with the dairyman who has enough hair in his butter so that the color of the cows may be known to the customer.

Clipping Queens

If there was anything in Prof. Bigelow's contention that more than one queen goes with a prime swarm, our practice of queen clipping might as well be abandoned at once, as control at swarming time, when one is in the apiary, and the assurance that a swarm will go back if it does swarm while we are absent, are the main reasons why we clip queens. Needless to tell any one, who has tried the plan, that our expectations are seldom disappointed in that line either, and in running large out-apiaries it would be a problem to get along without clipping the queens, for in at least nine times out of ten, if the old clipped queen is caught in front of the hive at swarming time, the bees will come back again.

How Much from Beekeeping?

If I may be allowed to criticize Mr. Wilder's advice to the men who asked if they could make respectively $20,000, $50,000, and $100,000 at beekeeping, I would say that said advice is so unlikely to come true that it should never be given that way at all. I believe that 99 out of 100 who start out with that idea of beekeeping, will be bitterly disappointed in the end, and will more than likely reproach the one who held out such glittering prospects.

By all means let us be conservative in a matter of this kind, as that course is better for those who are already in the business, and for those thinking of engaging in this line of work as well.

Orange and Sage Honey

A short time ago I was favored with some samples of honey from California, sent by Homer Mathewson, of Binghamton, N. Y., a friend I had the pleasure of meeting at Albany when the National convention was held there.

The samples were from orange and sage. The first named was delicious in flavor, but not as heavy in body as to be rated No. 1 in that respect. But the flavor had a decided "morish" taste, and I would give quite a bit for a can of real orange honey for our own use *for a change*. This latter qualification is to assure you that for steady use I still think there is nothing better than our own clover honey.

The sample from sage was very heavy in body and light in color, but the flavor was not appreciated very much by any member of the family. All pronounced it as having an oily flavor, and one made such a base slander as to say that it had a semblance of *castor* oil. Now, see here, you sage honey men, please notice that *I* did not say that; so don't turn your ammunition in my direction. Laying all joking aside, I wonder if the honey was not mixed with something besides sage, and if such was the case, no doubt our California friends would know the source of this "oily" flavor.

Address Before the Apiculture Club

It was the writer's pleasure to talk to the Apiculture Club at the Ontario Agricultural College on the evening of Nov. 10. The class is a large one, and I judge that about 125 turned out and listened patiently to a lot of "hot air." I suspect that the splendid interest manifested may have been caused by the desire of a lot of *boys*, and some

Little Alva Berry, Age 4 Years.

I am sending you a picture of my little son taken with the bees. On a walk to a cornfield 2 miles from my home, June 13 of this year, I discovered this beautiful swarm hanging on a limb bent nearly to the ground. Having 25 colonies at home, and some empty hives, they looked good to me, so I took my pocketknife, trimmed the limbs and carried them 2 miles home. I called a friend in Atchison, a distance of 6 miles, to come and take the pictures—the little fellow holding the swarm of bees is my son. He is 4 years old, and is not afraid of bees; yet he has been stung several times.

I started with bees 3 years ago, and have increased to 25 colonies, and want to reach a hundred. I like to work with the bees very much. Walter Berry.

Rushville, Mo.

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girls, too, to make another "boy" feel at home. No matter what prompted them in their actions, we will remember for a long while the splendid reception given, and hope that at least something of value may have been dropped during the rambling address they heard.

Kingbirds Catch Worker Bees

Mr. A. D. D. Wood says, on page 380, that kingbirds only catch drones. I wish that I could agree with him, as the bird in question is one of the best, from an insectivorous standpoint. But I have seen them scores of times catching loaded workers, in the evening, when not a drone would be flying. I have been within a few feet of very bold ones, and saw them catch loaded bees just at sunset. Even if they do catch worker bees, we could almost afford to spare the birds for the good work they do in other lines, but from experience at different times I am afraid they often catch queens when on their mating flight.

This is particularly true if the birds have a nest of fledgelings near the apiary. In a case like that an immense lot of food is needed every day. Finding no worker bees in the stomach of the birds is no evidence, as I have often dissected a bird right after watching it catch many bees, and never yet found a bee perfect enough to tell if it was a drone or worker. I believe that, as a rule, the bee is crushed and certain parts swallowed, the balance being dropped at once on the ground. But if there is anything I am sure of at all, it is that kingbirds catch worker bees as well as drones.

Comb or Extracted?

For a number of years I have advised inquirers to produce extracted honey instead of comb. Judging by present conditions too many have been following this plan. Present prices and *conditions* in the honey market, say with no uncertain sound that the apiarist equipped and qualified for comb-honey production can make no mistake in following that line of the business. Some one has asked the Bee-keepers' Review editor to change the familiar "Keep more bees," on the front page, to "Eat more honey.' First class advice, and let all who have influence in these matters in Ontario, take up the same slogan.

CONTRIBUTED ARTICLES

Disturbing Bees in Winter

BY G. M. DOOLITTLE.

A CORRESPONDENT writes thus: "Will you tell us in the American Bee Journal whether it is detrimental to disturb bees in winter. Should one wish to look after their welfare for any reason, such as lack of stores, to see at about what time the queen begins to lay, or anything that a man with the bee fever might want to know, would harm come by so doing? Must I positively let them alone after they are in the cellar for the winter months, or if left on the summer stands?"

During the summer season, with the mercury at 70 degrees or more in the shade, the handling of bees by removing the frames from the hives can do no harm unless perchance this is done in time of a scarcity of nectar, and so carelessly that robbing is started. But, as a rule, it is better not to disturb any colony unless something is to be accomplished by so doing. If you wish to post yourself about the inside workings of a colony, then it is better to set aside some individual colony for that purpose, and let the knowledge gained be considered as the financial profit from that colony, for no colony can do its best at storing honey where the roof of its house is removed every few hours.

Where anything is to be gained by looking after the welfare of a colony, which is supposed to have a poor or failing queen, scarcity of stores, poor combs, etc., then the disturbance of such a colony is not to be considered, as the profit will exceed the disadvantage.

But when it comes to the winter months we have altogether different circumstances. The bees have "gone to bed" for a six weeks to four months' nap, in accord with continued cold out-of-doors, or with the will of the apiarist if wintered in the cellar. If the apiarist has been "abreast the times," he will have looked after their stores in the fall, to make sure that none will be short until spring opens. Good stores and a temperature of from 43 to 47 degrees, with darkness, are necessary for cellar wintering, and good stores, proper protection through windbreaks and packing are all that is required for wintering on the summer stands. So why disturb the bees? Better post up for the next season by getting down your back volumes of the American Bee Journal and all the books you can afford which treat on our specialty.

But if the bee fever of a novice runs so high that his curiosity must be satisfied as a safety valve, then perhaps it would be better to disturb the bees of one colony at their peril than that the patient pine away under the fever. If the bees are on the summer stands, and a day comes sufficiently warm for the bees to fly freely, there is no harm in looking at them, for there is very little if any brood, and should there be a little in two or three frames, the large number of bees in proportion will cluster over this brood so no harm will result. Often there will be a few hours of sunshine with the mercury up to 50 in the shade, when bees in chaff-packed or double-walled hives will hardly wake up enough to fly. Under these conditions I have thought it paid to arouse the bees by opening the hive of such colonies as do not fly, or jar or pound on the hive a little to wake them from their winter sleep, so they will fly and carry over honey from the outside combs into the cluster, thus preparing them for a few weeks more of cold weather.

Where bees have been properly prepared for winter during September and October, they should be let alone during the winter months. If there is a *necessity* for disturbing them I should not hesitate. Only do not create a necessity through procrastination or willful neglect of getting the bees in the best possible shape for winter during the fall months. There is little question but that disturbance causes the bees to consume greater quantities of food, and often sets them to rearing brood when they otherwise would not do so.

But I have many times proven that such disadvantage was overbalanced by the advantage gained along other lines. Let me give one or two illustrations:

When I had been keeping bees some two or three years a farmer living two miles distant, advertised 27 colonies for sale in box-hives at $5.00 each. This was considered a big price at the time, but like any beginner I was anxious for more bees, so I went to see them. He kindly consented to let me look them over, which I did by carefully tipping the hives on the benches they occupied, as they were wintering out doors. I found that most of them were light in stores, and that there was only one colony in the lot that I considered worth the $5.00. I offered $5.00 for this one, which he took. I wrapped it in one of the sheets I had brought along, put it on the opposite side of the cutter seat which I occupied, turning it bottom-side up, and drove home in the twilight of a cold evening in the forepart of January. I well remembered how the bees roared, as the sleighing was poor, and how I inwardly censured myself for not leaving them where they were until spring, as "such a disturbance as this" would surely cause them to die. When they got quiet, about 10 o'clock that night, I carried them to the cellar where the rest of the bees were, took the sheet off and set them in their place beside the others, still bottom-side up, as in the early 70's we always wintered bees in box-hives that way.

No more of the farmer's bees were

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sold, and imagine my surprise to find on going there one day the last of April, that all but 2 of the 26 colonies left were dead, while the one I had disturbed "nigh unto death" was one of the best colonies I had; it gave a good swarm that year and stored 129 pounds of "box honey."

After our great loss of bees during one winter in the latter 80's, a winter extremely cold and long drawn out, the claim was made that the bees "froze to death." I did not believe it, but claimed that no chance to fly during 5 months of "long confinement" was the cause. The argument "waxed so hot" that one afternoon the next winter, when the mercury stood at 12 degrees below zero, I took a colony of bees, and with cover and bottom-board removed, suspended the hive a foot above the ground, leaving it thus for 36 hours, during which time the mercury got as low as 23 degrees below. This colony was then put on its old stand again, and came out in May fully equal to any of its fellows, which had no disturbance above the usual winter's elements.

In conclusion, allow me to say that if there is anything in this article that would seem to show that the disturbing of bees in winter does no harm, I protest in advance against the assumption that I advise such disturbance. I do not so advise except where some gain is expected to be made.

Borodino, N. Y.

Beekeepers I Have Known—"Dr. A. F. Bonney"

BY FRANK C. PELLETT.

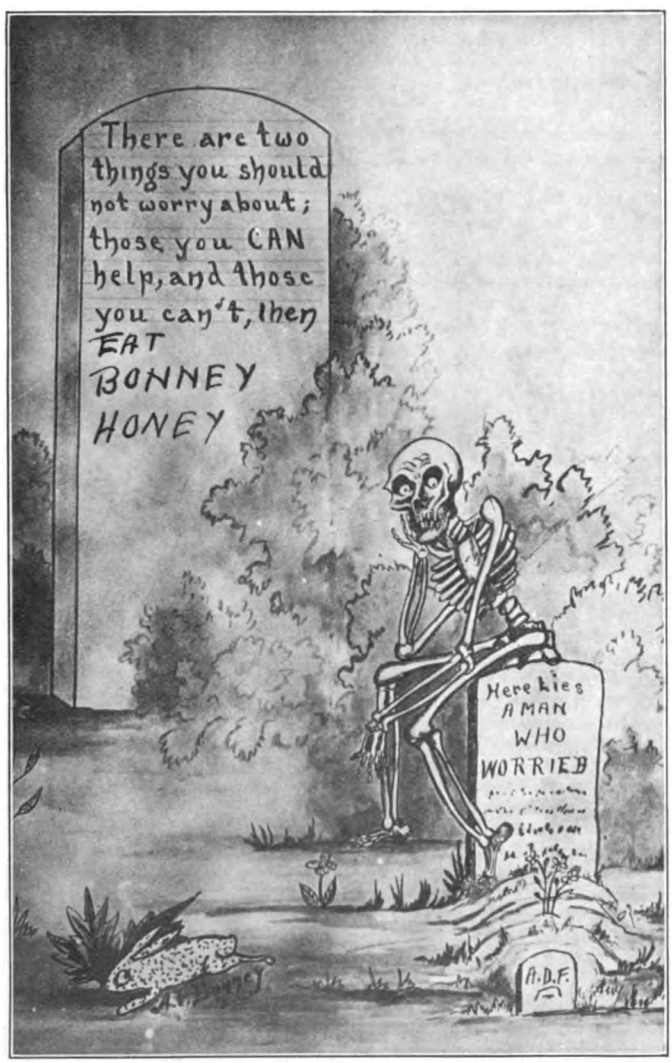
THERE are no words in my vocabulary to adequately describe Dr. Bonney, of Buck Grove, Iowa, for he is undoubtedly the most unique character among Iowa beekeepers. Because of ill-health he was for years a wanderer in search of a climate that would benefit him, and he has met with many adventures such as fall to the lot of few men. Detective, photographer, chemist, assayer mining expert, explorer, lecturer, editor; all

A. F. BONNEY AT 27.

these he has been and more in addition to his regular profession, that of a physician, and now he is rounding out an eventful life as a beekeeper in a quiet little town in western Iowa.

Dr. Bonney has unlimited resources as an entertainer. His gift of ventriloquism led the Indians to call him "The man of two voices," and he has many times mystified his friends by his feats of sleight of hand. He was a resident of the southwest in the old days when every man carried a six shooter to serve as a lawyer, judge and jury in the settlement of disputes. The old habits unconsciously manifest themselves at times. For instance, in any company he will take such a position that no one can approach him from behind. His adventures in Old Mexico and the southwest would fill a book, and his stories fairly bristle with thrills. It is said of him that he had frequently to change his sleeping place in the days when he edited a socialist paper in a little town in Arizona, because of the fact the enemies frequently shot through the rooms where he was supposed to be sleeping. On one occasion he proposed to a gun man, who had a grudge against him, that they shoot at a mark, and the poorest marksman leave the town forever. Dr. Bonney won and the other fellow handed over his gun and left the place according to agreement.

Dr. Bonney is constantly starting something among the bee men, either


There are two things you should not worry about; those you CAN help, and those you can't, then EAT BONNEY HONEY
Here lies A MAN WHO WORRIED
A.D.F.

SAMPLE OF THE POST-CARD DR. BONNEY USES.

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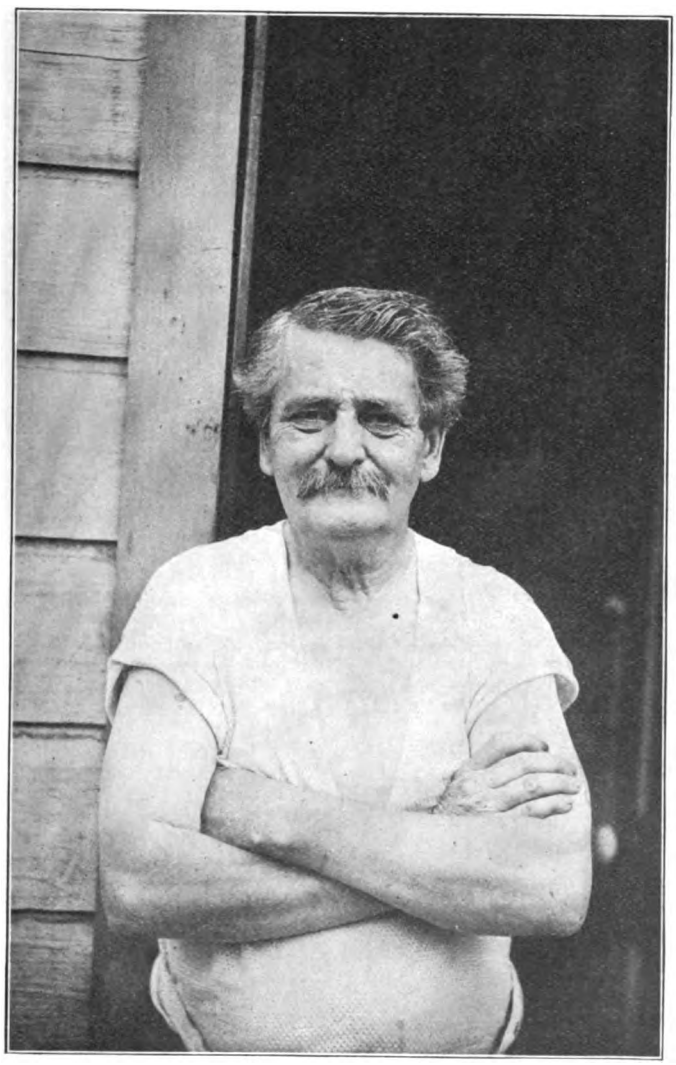
with his tongue or pen, and is always engaged in some good-natured controversy as to whether or not bees reason, or whether they can be improved, or some other of the many perplexing questions that are always before us. The writer and the Doctor cannot agree for 10 minutes at a time, although we are the best of friends. It looks like the only way we can ever settle our differences is in a similar manner to the Arizona contest, but as the writer is a poor marksman, he will hardly risk such a challenge.

Dr. Bonney is a persistent advertiser, and sells his honey at good prices. His favorite means is a comic post card, in some corner of which appears a rabbit and the words "Eat Bonney Honey." By sending out a batch of these cards at any time he usually finds a lot of customers for his product.

Atlantic, Iowa.



A. F. BONNEY.

Bee Diseases

BY GEORGE W. BERCAW.

MY contact with bee-diseases has been more from observation than from experiment, owing to the fact that none of our many yards has ever been more than lightly affected. Some years ago we purchased an apiary of 100 colonies, and among them found a few light cases of foul brood. It being in a very light form, we very readily stamped it out by taking it in hand immediately.

I do not think any up-to-date beekeeper needs to feel alarmed if he will only heed the advice given, and take immediate steps to stamp out any disease that may show itself in his yard, and do all in his power to assist some brother beekeeper in his immediate locality who might be so unfortunate as to have disease among his bees. In my travels through different parts of the State I have come in contact with various bee-diseases. I have seen outapiaries, located ofttimes in out-of-the-way places, where the owner visits them about once a year to get the honey, leaving the bees to shift for themselves. Here I usually find old box-built antiquated hives with odd-sized frames, sun-warped covers and sides, with bee-entrances on sides, top and bottom. It is not an unusual thing to find such bee-yards in this State. Not all are affected with disease, but a large percent of them are, and in view of such conditions, easily succumb. Contagious diseases spread very fast among the human family, and this is no less true in insect life; infected bees are as a general rule weak, and are an easy prey to the stronger colonies, thereby spreading contagion by reason of the robbing of honey.

In producing bees and queens commercially for shipment, extreme caution should be exercised, taking no unnecessary chances in shipping anything from a disease-affected yard or from a locality where it is known that any diseased bees are kept. I would suggest that *all* persons owning bees, whether for pleasure or for profit, keep a close watch over them, and in event of anything suspicious call for the inspector, and do not wait. He will gladly assist you and give all the aid at his command to stamp out disease and prevent its spread.

The time is at hand when these suggestions will have to be handled under a more systematic method, and much good can be accomplished by the earnest and faithful co-operation of every bee-keeper interested, whether he has one or a thousand colonies.

Glendale, Calif.

Well Preserved Honey — Extracting by Centrifugal Force

BY DR. A. F. BONNEY.

THE National Geographical Magazine for September, among other things, contains a statement so startling that bee-keepers will no doubt agree that it is utterly false. However, we must remember that conditions of heat and moisture are very different in Egypt from here, that things were sealed and buried deep in the earth. Again, the men who are conducting those excavations are of well known integrity, and have no possible interest to deceive. On page 999 I read:

"The tomb was intact, and the objects it contained were as perfectly preserved as though they had only been shut up a few weeks before * * * Two beds of fine design decorated with gold occupied another part of the chamber, while a light chariot in perfect preservation stood in a corner.

FRESH HONEY 3000 YEARS OLD.

"Most startling of all was the discovery of a jar of honey, still liquid and still preserving its characteristic scent after 3000 years. 'One looked" says Mr. Weigal, 'from one article to

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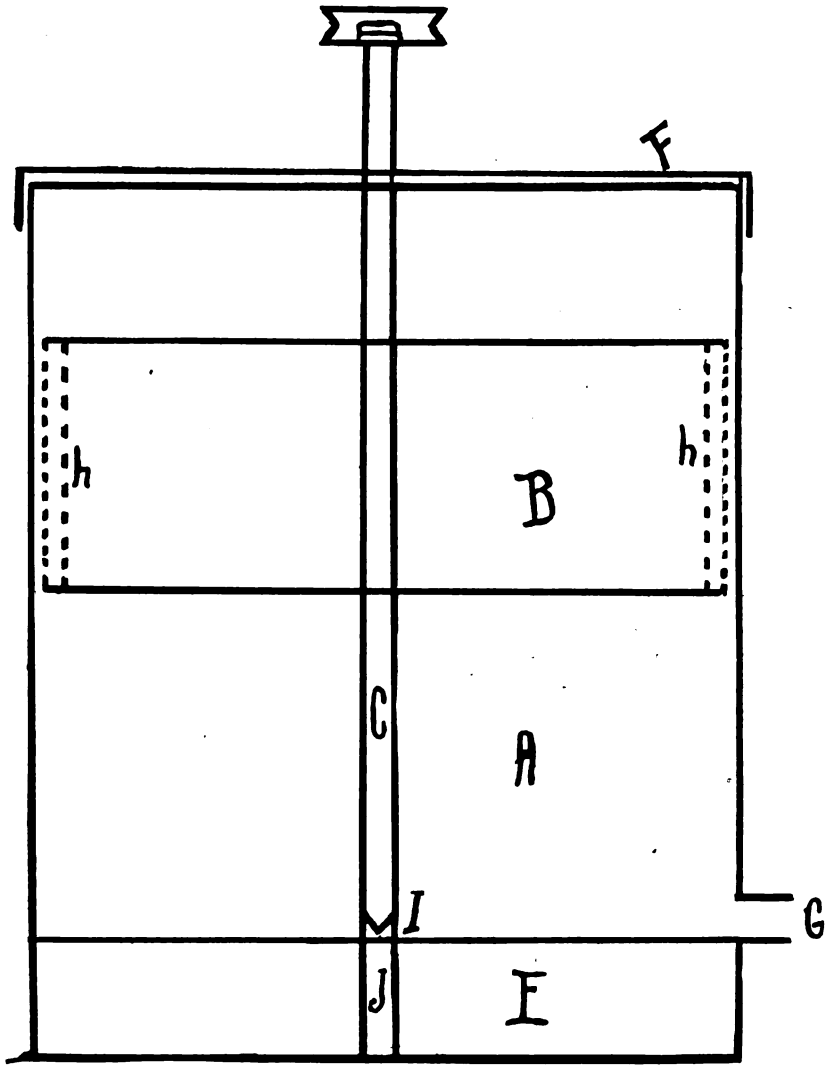

DIAGRAM OF MR. BONNEY'S IDEA OF A WAX PRESS.
A, tank; *B*, cage; *C*, shaft; *D*, pulley; *E*, water space; *F*, cover; *G*, honey (wax) gate; *hh*, walls of cage; *I*, pivot joint; *J*, base for shaft.

another with the feeling that the entire conception of time was wrong. These were the things of yesterday, of a year or two ago."

If my memory serves me, there was found while excavating Pompeii, vessels containing fruit so well preserved that the flavor of the different kinds could be detected by taste and smell, which renders a little more probable this other story, remembering as we do that cloth, paintings, feathers and mummies have come down to us as fresh as though buried yesterday. When the mummy of Seti was unwrapped his features were found so well preserved that any one knowing the living king would surely recognize him. He lived nearly 3500 years ago.

"It is not our knowledge of the past that makes us proud of the present, but our ignorance."

A CENTRIFUGAL WAX EXTRACTOR.

For 3 or 4 years the writer has studied over a cheap simple way to separate wax from waste, and applying some of his knowledge of mechanics and philosophy found that if a machine is made as follows, from 95 to 98 percent of all the wax can be saved. The three factors are time, heat and motion:

Construct a tank according to your needs, say 36 inches high and 30 inches in diameter. Have the cover fit very tightly, possibly clamps will be needed. In this can is a perpendicular shaft extending from the bottom of the tank to a foot above, and on this shaft, inside the tank, is a shelf almost as large as the inside of the tank, while outside on the shaft is a small pulley.

The table should be of metal with a few corrugations one inch deep at the edge, and none at the hub. Around the edge of the table is a wall of wire mesh, one-sixteenth of an inch mesh or larger, or a double wall, the outer of fine screen, the inner of coarse. These will be about 2 inches apart and a foot high.

In the bottom of the tank is a space for water, and at a height of 6 inches a honey-gate to draw out the melted wax. A pipe conducts steam into this tank, or arrangements can be made to heat the contained water. I prefer the steam idea, as it can be run in superheated, and will render the wax as liquid as water.

It will be seen by the mechanically inclined that if wax of any kind is put into this cage, heated, then the table revolved 200 to 1000 times to the minute, every particle of wax will be thrown off, as the water is thrown from washed clothes in the laundry centrifugal drying machine or the cream from the milk in the separator. Any machinist will plan the thing for you. That the idea is entirely practical I feel very sure.

Buck Grove, Iowa.

Honey Production in Michigan

BY IRA D. BARTLETT.

MY apiary consists of 160 colonies, and I harvested 17,000 pounds of wild red raspberry and clover extracted honey, and about 200 pounds of comb honey in 1912. The ground is very level, as you will note, but to the north and west of the apiary there are ranges of hills. It will be many years before they are used for agricultural purposes. At present they are covered with wild red raspberry and milkweed plants. In the ravines are little brooklets, and here the willows bloom in the spring, and furnish plenty of pollen and some early honey for brood-rearing. In these wet places the goldenrod thrives also, and blooms later in the fall, and on the hills where there are some scattering plants.

To the east the Jordan river flows from the north, and along the river bottoms large fields of alsike clover are grown. For some reason alsike clover has not secreted much nectar for several seasons, but years ago we depended almost entirely upon it for our honey crop.

We have a very diversified soil here, so the source from which we get our honey changes with the season. In 1912 it was very wet just previous to opening of the red raspberry, and then it was very warm and dry during the flow. The result was a heavy flow from raspberry, but the dry and warm spell during the raspberry and clover came just at a critical time for the milkweed plant, and so we got very little from that source.

We have a great number of honey plants here in northern Michigan, but as it is usual in any country, there are but few plants that give us any quantity of surplus. We have the soft maples, willows, poplars, water maples, dandelion and fruit bloom early; then raspberry, clover, red and white alsike, willow herb, sumac, basswood and milkweed. The fall honey plants are goldenrod and buckwheat. There are

LEWIS HIVES ARE BUILT LIKE FURNITURE ARE PERFECT IN ALL RESPECTS
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MR. IRA D. BARTLETT IN HIS APIARY.

also numerous other plants that the bees work on, but they give no noticeable amount of surplus.

As you will notice, the hives are placed an equal distance from each other both ways, and in pairs. All colonies face the east. The hives I use are the 10-frame full depth. I have, however, about 30 8-frame ones. I tier up from the bottom by raising all supers that are on, and placing the super to be put on directly over the brood-nest. I have a sufficient number of supers to harvest a crop. The queen-excluder is used on all hives, being placed on about July 1. In 24 days all brood is hatched, and then the honey is taken off with bee-escapes and stored in the honey house, where it is heated to the proper temperature, extracted, and run into 60-pound tin cans, cased, and then they are ready for market.

I have one other apiary similar in size run the same way. The tall hive of bees shown in the picture produced 300 pounds of extracted honey in 1912.

East Jordan, Mich.

The Season of 1913 in Central Illinois

BY C. F. BENDER.

THE difference in seasons is marvelous. Having kept bees in one locality nearly 20 years, and making honey-production my business, I had begun to pride myself on being a good guesser as to future honey-flows. But my pride as a forecaster has vanished. If some one were to ask me now if we were likely to get a honey-flow from mush-rooms, or whether ginseng honey would be plentiful next year, I should answer, "I don't know."

Our season began in April with a heavy flow from dandelions. Bees were wanting to swarm by May 1, and about 10 pounds of dandelion honey per colony was stored in supers. That was broken record No. 1. I had never had any surplus from dandelion before, and never had to fight swarming earlier than June.

The white clover looked good, and we prepared for a record crop, but the heat and drouth spoiled the bloom, and the season ended about June 20 with 5 pounds of white-clover honey per colony. Then we had 10 days of robbing, with a little honey-dew coming in, enough to spoil all sections of white clover that were not completely sealed. I cancelled my order for shipping-cases, and otherwise took in sail. According to all previous experience we were slated for a poor season. The white clover was completely dried up, and the dry spring had spoiled all chance for a fall crop.

But another surprise was in store. About July 1 red clover began to yield. I am pretty sure it was red clover, because I took great pains to sift the evidence. To begin with, the weather had been so remarkably hot and dry that there was little else in bloom; then a great many of the incoming bees carried the typical red clover pollen, and we never get that shade of brown pollen from anything else. The red-clover fields showed great numbers of bees at work; and the men who cut the hay complained that the hay forks and mowing machines were all sticky with honey. I could find very few plant lice on the clover plants, and the bees seemed to be working altogether on the blossoms.

It was important to be sure that the honey came from red clover, because I wanted to know what red-clover honey was like. I believe that the bulk of my crop was from that source, and it is even whiter than the white-clover honey, and quite as fine in flavor.

I have three small apiaries, and there happened to be large fields of red clover in reach of each. Perhaps for that reason the crop was greater than I ever got from red clover.

With me the season was also peculiar in giving a large crop of honey with no swarming after dandelion. Only one of my colonies tried to swarm after June 1. We did not have the usual intermission in August, the flow continuing right along, and after the red clover ceased to yield, or was all cut for hay, the Spanish-needle began and lasted until Oct. 1.

About Sept. 20 some kind of wild aster began to yield, which was another unusual thing. I took off all supers just before Oct. 1 as usual, for the storing in comb-honey supers nearly ceases when cold nights come. But I was sorely tempted to put them on again, for honey kept coming in briskly up to Oct. 20, when we had our first killing frost. Dandelion also bloomed freely in October, and likely helped.

For once we have "gathered grapes of thorns, and figs of thistles." That the worthless dandelion should produce solid cash; that protracted drouth should cause a bountiful honey crop;

that this great yield should be gathered without swarming; that supers should be needed in October, and that 95 percent of all this honey should come from plants that had never given me surplus before; these have been what Dick Swiveler called "staggerers."

Newman, Ill.

The Value of Exhibits

BY J. M. KILLIAN.

ATTACHED is a picture of a bee and honey exhibit that I made at our county fair. You will notice that we had an old "bee-gum," also a box-hive and a straw skep; together with several modern hives. The intention of the exhibit was to show the evolution of the bee hive from the straw hive on down to an up-to-date hive.

I had never seen a hive made of straw, but from photographs and descriptions of them. I cut some rye when it was beginning to get ripe and allowed it to cure. Then I twisted and formed a continuous rope of straw and shaped it as you see in the photograph. It was the object of much curiosity at the fair, and hundreds of people asked questions about it. Only a few of the older ones had ever seen one. We had quite a display of honey, both comb and extracted, also beeswax and "chunk honey."

But the part of the exhibit that caught the crowd, was the observatory hive of live bees, working on a nice frame of wired foundation. The queen was the admiration of all who saw her. A display of this kind does not pay so far as the premiums given by the fair are concerned, but as an advertisement of your honey, nothing can compare with it. My honey is all sold near my home; in fact, most of it in my own town; so you see I met and talked with the people who buy and eat my honey; and they like to see and get acquainted with the man who produces it.

And, say! you have the finest opportunity to explain away that old canard about manufactured comb honey, and you have no idea how many people believe it, and how much harm it has done the bee-industry. It takes considerable self control to be pleasant and talk kindly to one of those fellows who tells you that he *knows* it can be manufactured, for he has bought it, and the grocer told him it was manufactured honey, etc. But I always explain to him the reason why it cannot be manufactured, get him to pay me a visit and see the bees at work if possible, and after you have convinced him that it is a mistake. he is always ready to correct others that he may meet.

I have been producing chunk honey for eight years, and selling it for 20 cents a pound.

Rockport, Ind.

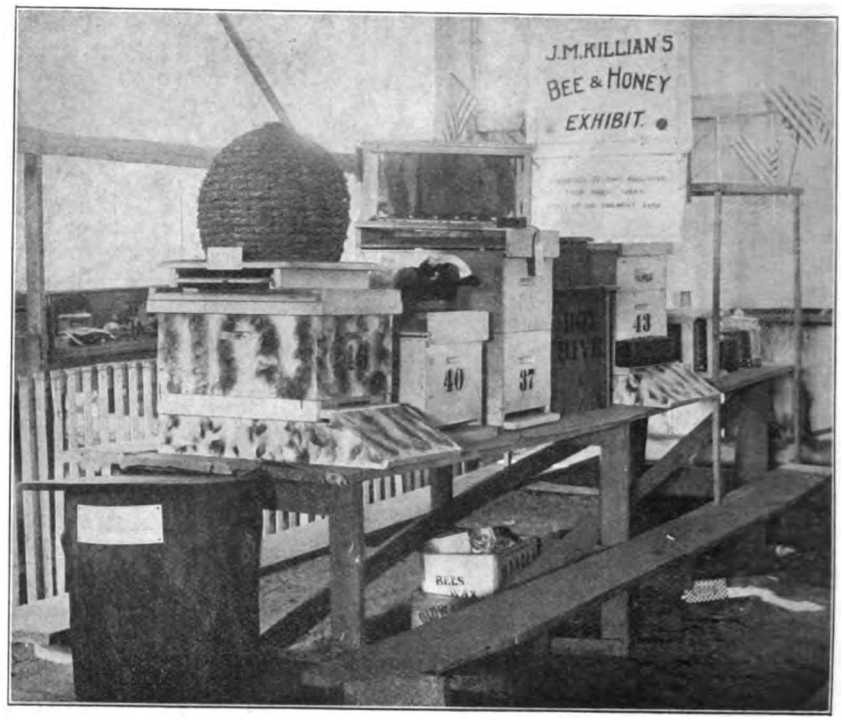

EXHIBIT OF J. M. KILLIAN, AT ROCKPORT, IND.

DR. MILLER'S ANSWERS

Send Questions either to the office of the American Bee Journal or direct to DR. C. C. MILLER, MARENGO, ILL. He does NOT answer bee-keeping questions by mail.

Transferring and Feeding

1. When is the best time to harvest honey from the bees?
2. When is the best time to transfer bees from a tree or box-hive?
3. When is the best time to feed the bees?
4. I had one colony and lost it by feeding them only sugar water. Other bees robbed them and they starved. What is the best feed, and how and when shall I feed them?

TEXAS.

ANSWERS.—1. If it is comb honey, the sooner it is taken after it is sealed the better, because the whiter the sealing the better it will sell, and it becomes darkened by being left on the hive. If it is extracted honey, you can take it as soon as it is sealed, or you can leave it on the hive until the bees are done storing. But if you care for your future market, don't extract unripe unsealed honey.

2. If you want to transfer the bees with little or no regard for honey, there is probably no better time than in fruit-bloom. If you want to get as much honey as possible, do it at the close of the honey harvest.

3. The best thing is never to feed them, but let them gather their own stores. But if the season is a failure, as it is some years in most places, then you must feed. The best time for that is just as soon as you know they will need feeding for winter; say in August or September. October does very well, however, and even if you haven't fed until December, better feed then than to let the bees starve.

4. The best thing is to give them combs of sealed honey, but it isn't likely you have them. The next best is a syrup of granulated sugar, probably just what you did feed them, only there was probably something wrong about the way you fed that started robbing. Of course, I cannot tell what it was that was wrong; possibly you may have spilled some of the feed, or done something else that was a bit careless. Be careful not to leave any cracks open that will let bees in from the outside. If there is danger of robbing, it is well to give feed in the evening after bees have stopped flying, and to give no more at a time than they will clean up by morning. For fall feeding nothing is better than a Miller feeder. If you feed early, equal parts of sugar and water will be all right; but if you do not feed until after the middle of October, then you can have 5 parts of sugar (either by weight or measure) 2 parts of water.

Evidently you have no bee-book of instruction, and it will be big money in your pocket if you get a good one, say such a one as Dadant's Langstroth.

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Comb or Extracted?

Which would be the most profitable for me, comb or extracted honey? I was offered 6½ cents per pound for mixed extracted honey delivered at Indianapolis. The home demand (about 1000 pounds) is 15 cents per pound for comb honey. As I expect to make beekeeping my occupation, could I afford to sell extracted honey for 6½ cents per pound? INDIANA.

ANSWER.—It is not an easy thing to say what would be best; so many things must be taken into consideration, the peculiarities of pasturage, market, etc., but it would seem that you ought to do considerably better with comb at 15 than with extracted at 6½. There are places where extracted can be profitably produced at 6½ cents; but hardly in your locality.

Introducing Queens—Stores—Foul Brood

1. Should I introduce a tested queen into my colonies that have not shown much strength this season, and have not swarmed?
2. Is this the right time to do it, and how do you go about removing the old queen?
3. How much honey should I leave in each hive, as a winter supply for the bees?
4. Is it too late to remove any surplus honey at this time of the year?
5. How can I tell foul brood?

NEW JERSEY.

ANSWERS.—1. Hard to say without knowing more about it. The likelihood is that there is not a good queen in a colony which has not become strong; yet something depends upon how much excuse it has for remaining weak. If it was very, very weak in spring, it is still possible the queen may be all right. But if it was reasonably strong early, has good combs, with not much drone-brood, and if there was enough pasturage so that other colonies built up strong and did well, then it would be we well to replace the queen with a better one.

2. It is getting pretty late, as brood-rearing is pretty much over, and it might be as well to wait until next season. There's no special trick about removing the old queen, just look over the brood-combs until you find her, and then mash her with thumb and finger. But don't kill the old queen in advance of having the new one, for sometimes there is delay in getting a queen.

3. A store of 30 or 40 pounds is none too much for wintering out doors, a stronger colony needing more than a weaker one, and for cellaring 10 pounds less will do. Better 5 pounds too much than 5 ounces too little. The overplus will not be wasted.

4. No; if supers are still on, take them off; only in so doing look out that you do not take away stores needed for winter.

5. You probably cannot tell it at all now, for it is a disease of the brood, and unless in a very bad case you can detect it only when brood is present. The chief symptom in American foul brood is the ropy character of the dead larva; stick a toothpick into it, and when you draw it out it will string an inch or two in a string. If European foul brood, look for larvæ that instead of being pearly white are quite yellowish. If you write to Dr. E. F. Phillips, Department of Agriculture, Washington, D. C., he will send you gratis valuable printed matter about foul brood.

A Cure for Foul Brood?

In the Western Honey Bee for October, page 26, and also in the advertising columns occurs the following by C. W. Dayton: "I will pay $25 for any case of foul brood (European or American) that cannot be cured with 5 cents worth of *antibum* (honey and water)." In the article he makes wonderful statements on his discovery of *antibum* and *aquasun*.

Let us know if this man is a *fake*, for if his claims were true, New York State would be soon cleared of foul brood, and Mr. Dayton would be kept busy making his cure.

NEW YORK.

ANSWER.—I have much doubt as to the efficacy of the remedies named.

Introducing a Queen by Smoke Method

As I am just a beginner, I wish you would explain as clearly as possible how to introduce a queen by the smoke method.

WISCONSIN.

ANSWER.—In Gleanings in Bee Culture for June 1, page 370, what you call the smoke plan of introduction is thus given by Arthur C. Miller, the inventor: "A colony to receive a queen has the entrance reduced to about a square inch with whatever is convenient, as grass, weeds, rags, or wood, and then about three puffs of thick white smoke—because such smoke is safe—is blown in and the entrance closed. It should be explained that there is a ⅞-inch space below the frames, so that the smoke blown in at the entrance readily spreads and penetrates to all parts of the hive. In from 15 to 20 seconds that colony will be roaring. The small space at the entrance is now opened; the queen is run in, followed by a gentle puff of smoke, and the space again closed and left closed for about 10 minutes, when it is reopened and the bees are allowed to ventilate and to quiet down. The full entrance is not given for an hour or more, or even until the next day."

Editor Root is very enthusiastic about the plan, since having tried it very fully with great success. In Gleanings for Oct. 1, he directs to start the smoker going, giving a dozen or two strong puffs out in the air. When the smoke rolls out of the smoker into the air dense and heavy, blow 3 strong puffs in at the entrance, and then close the hive. After an interval of perhaps 10 or 15 seconds, push the queen in at the entrance, follow her up with one more strong puff of smoke, and close the entrance. In all four puffs are given, all that a large smoker will give when the bellows is closed clear down at each puff. In five or six minutes remove the plug. He says the plan will not work with a small nucleus in a large hive, even if the rest of the space be filled with empty combs.

Carniolans or Italians?—Divisions

1. Which is the more fitted to Japanese conditions, the Italian or the Carniolan? This is a rainy and moist section.
2. Colonies often show intentions of swarming at the close of the honey-flow, when they have produced comb or extracted honey in abundance. Is it better or not to separate colonies before they show inclinations to swarm? If it is better to separate, how is the best way to do it? JAPAN.

ANSWERS.—1. To get an answer to this question the two kinds should be tried side by side. Even after knowing climatic conditions one can only make a guess, and my guess would be that the Italians are better.

2. Again I am on uncertain ground, but should think it better not to separate, so as to have strong colonies for winter.

Precautions in Uniting

If you were to buy bees by the pound to strengthen weak colonies, what precautions would you take to insure a safe uniting?

IOWA.

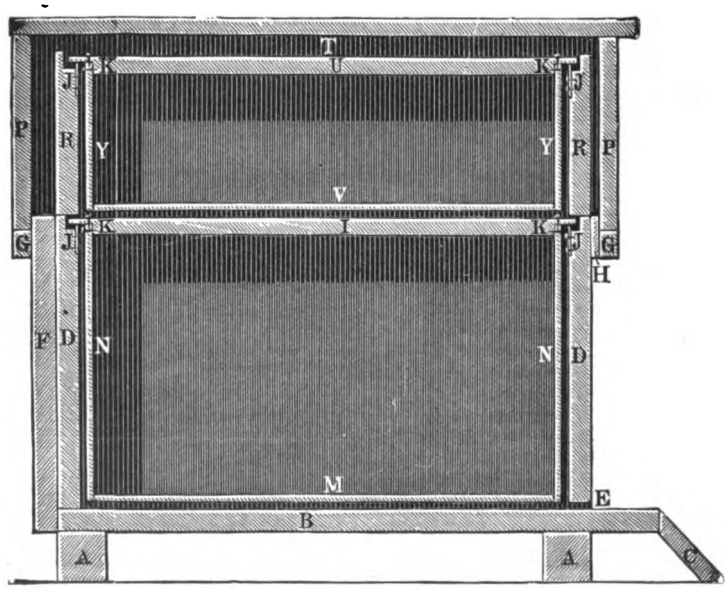
ANSWER.—Shake both lots on the ground all mixed up, and let them run into the hive together. As an additional safeguard, before mixing, dust both lots with flour.

Dimensions of the Dadant Hive

I have been looking through the American Bee Journal for dimensions of the Dadant hive and frame about which I wrote Mr. Dadant some months ago, but cannot find them. Will you kindly give them in the replies to queries. The expense of getting a sample hive here is too great.

C. N. WHITE, England.

ANSWER.—The dimensions of the Dadant hive are not given in any previous number



CROSS SECTIONAL VIEW OF THE DADANT HIVE.

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of the Americah Bee Journal; they are to be found only in the Langstroth-Dadant book and in Bertrand's "Conduite du Rucher" (Conduct of the Apiary), which has been published in eight different languages. The dimensions of the frame are about the same as those of the original Quinby movable frame. This hive is especially adapted to the production of extracted honey, and that is why it is very much more widely used in the countries where modern bee-keepers can secure almost as much for extracted per pound as for section honey. We give the cut of the hive. The dimensions are to be found in the Langstroth-Dadant book.

Foundation and Drawn Combs—Splints

1. I have been running my apiary for chunk honey, but find that I can find a sale for quite a lot of extracted honey. I have a few nice straight combs on medium brood foundation, wired. What would be the storing capacity of one colony with one-inch foundation starters, one colony with full sheets of thin surplus, and one colony with full sheets of medium brood foundation, as compared with a colony with full drawn combs; that is, if a colony with full drawn combs could fill 20 frames, about how much could the other respective colonies fill, everything else being equal. I expect to use full sheets of thin surplus for chunk honey, and full sheets of medium for extracted. I ask these questions simply to have some idea as to how much foundation of each kind to buy this season.

2. I use full-sized Hoffman frames. I have a good supply on hand, and do not wish to buy any more this season, or I would buy shallow frames. I notice that I can buy full-sized sheets of thin surplus to fit these frames, and expect to use them this coming season instead of narrow starters as heretofore. Do you think I will gain any more chunk honey by this?

3. On page 303, of "Langstroth on the Honey Bee," you advocate the use of wooden splints to support these wide strips of foundation. Do you use these splints in extracting frames as well as in frames for chunk honey?

4. Do you use splints opposite each other on the foundation, or do you use them on one side only? KENTUCKY.

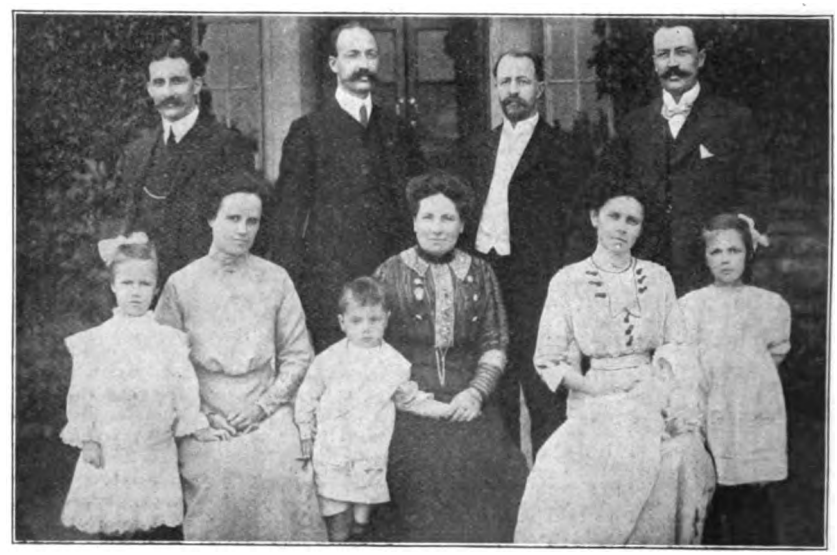
ANSWERS.—1. I don't know. If you want me to guess, I'm willing to do my best at guessing. I must premise that by saying that the answer depends somewhat upon the flow. If a short and very heavy flow is on, the fully drawn combs will have a much greater advantage than they will have in a light and long-continued flow. In the former case, while the colony with full combs stores 20 pounds, the colony with one-inch foundation starters will store from 10 to 15 pounds, and the colony with full sheets of thin surplus from 12 to 17. With medium brood foundation it ought to do just a little better than with thin surplus.

In the case of the long, slow flow, while built combs give 20, the starters should give 15 to 18, and the full sheets of foundation 16 to 10. I can, however, imagine an extreme case with an immensely heavy flow lasting only a day or two, in which 20 pounds would be stored in the built combs and not a drop in the others. On the other hand, I can imagine a very long flow with a very little more gathered daily than the bees need for their own use, and very nearly as much stored with starters as with full combs. But remember that all this is only guessing, and my guesser may not be in perfect working order. I think the editor-in-chief knows more about it than I do, and I'd be glad to have his guess, even if it makes mine look like the guess of a beginner. [My guess would be a greater difference when built combs yielded 20 pounds, say 10 to 15 pounds for starters, and 15 to 18 for sheets of foundation. I have seen sometimes what Dr. Miller states, 15 to 20 pounds in built combs and not a drop in the others.—EDITOR.]

2. There will be a very little gain in a long and slow flow, and a very big gain in a short, heavy flow

3. I would use splints in extracting combs, but on no account in chunk honey, unless the honey were afterward to be cut up on the lines of the splints and the splints taken out.

4. On one side only.



FAMILY OF C. N. WHITE, OF ENGLAND.

REPORTS AND EXPERIENCES

Twelve Colonies Yield $244.25 on a City Lot

The honey-flow here this season was the best ever, white clover especially. There hasn't been so much in 10 years. Sweet clover bloomed until frost killed it. We had a few acres of buckwheat that yielded well, but it was about 2½ miles from town.

I sold all of my honey here at home for 20 cents per pound. I sold $210.25 worth of comb honey and $34.50 worth of bees. Bee-keeping is just a side-line with me, and all this was done on a city lot 75x150, with 12 colonies, spring count. I got 1307 sections from bees this season. I have 15 colonies all packed for winter, with an abundance of stores. Attached is a small picture of myself among my bees. This was taken just as the buds on the trees were shooting forth. To the left is my shop where I make my hives and do all of my work for the bees.

THE APIARY WHICH YIELDED $244.25 ON A CITY LOT.—OWNED BY FRANK LANGOHR.

No swarms got away from me this season, as I use the clipped-queen plan. I find this is the best way to prevent them from getting away. The experience of this season tells me that there is money in bees if conducted rightly. If I had a place, say 20 acres, I would be right there and have it stocked with bees, and make a better living than I do now.

I have worked 27 years for one man in a sawmill as head sawyer, and it is quite a relief to go home and spend a little time with my bees; not only a relief but a pleasure. If any of the subscribers can beat this record of getting 1307 sections and selling $210.25 worth of honey, and $34.50 worth of bees on a city lot four squares from the court house, with 12 colonies, spring count, I would be glad to hear from them.

The American Bee Journal has been a great help to me, and I cannot afford to be without it while keeping bees.

FRANK LANGOHR.

Columbia City, Ind., Nov. 13.

Scraping Sections

I, like some other writers, am willing to give valuable information away and not get it patented (excuse me for classing myself with writers). When I sat down to scrape over 17,000 sections of comb honey this fall, I tried several schemes to shorten and better the process. I got up after scraping, grading, and boxing it ready for market very tired. Now, the valuable recipe I am about to give to the old beekeepers as well as the new, is this: "Just keep on a scrapin'."

Nampa, Idaho. L. W. BENSON.

Revengeful Bees

An unusual case of injury to the "innocent bystander," is given in the following incident: At one of the farm houses in northeastern Pennsylvania, the children had a pet fox, which they kept in a chicken-wire cage staked down on the lawn. One day the farmer's wife came from the spring-house carrying a dish of honey. This she placed on top of the fox's cage for convenience while she busied herself with some other outdoor work. She forgot all about the honey until late in the day, and on hastening out for it found the fox dead. The bees from a neighboring hive had been attracted by the honey, and they had attacked and killed the fox. Do you believe that the bees

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blamed the fox for the theft of the honey?
Scranton, Pa. F. W. BRADY.

[You do not say whether the bees who took that honey were the same ones who had supplied it in the first place. It might have come from another hive. Don't you think that, if the bees could accuse the fox of stealing the honey, they might also have noticed that he was caged? If bees always tried to sting to death those who deprive them of some of their honey, some of us would probably have been stung to death by this time.

Laying jokes aside, it is quite probable that there was some dispute among the bees of several hives upon the carrying away of that honey. This is usually the case Then, angry behavior and fights being the result the restless fox was attacked as would have been other hairy, living creatures close at hand. At a time of robbing, we have seen the bees of very peaceable colonies attack men and beasts at quite a distance. That is another argument against ever exposing any sweets in reach of the bees in times of scarcity. Fighting for exposed sweets renders them uncommonly irritable.—EDITOR.]

Carniolans All Right

Attached is photograph of one of my Carniolan colonies. Please note in the Bee Journal of October, 1912, on page 311, I made inquiry about larger hives, and the advice I got from your valuable Journal shows the result this year. The colony in the photo-

210 POUNDS OF COMB HONEY WERE PRODUCED BY THIS COLONY THIS SEASON.

graph has made 210 pounds of comb honey this season. I can show you several colonies of these bees that did fine this year. We had a very short honey flow this summer. It was the severest dry weather I have ever seen. My Italian colonies did not get half the honey that the Carniolans did, and they say the Carniolans are swarming bees. In my estimation they are no worse than any others if rightly managed. Please note the way I am dressed, when working among my bees. It shows their gentleness. They work on red clover as well as any Italian bee, and they gather very little propolis and cap their honey nice and white. The Carniolan bee has come to stay in my apiary. EDWARD V. MAREK.
Peoria, Ill., Sept. 16.

Good Report from California

I have finished extracting, and took a little over 9000 pounds from 102 colonies, spring count, and increased to 156 good, strong colonies, and they all had at least 30 pounds of honey; many of them with as much as 35 pounds. Many thanks for your instructions.

My honey for 1911 averaged 86 pounds of extracted per colony; 1912, 80; 1913, 90.

This is away over the average of this section of the country. I am sending you, under separate cover, a little bunch of *Polygonum bolanderi*. It begins to bloom about Aug. 10. I have seen bees working on it Nov. 4. They are working on it today with as much vim as they worked on alfalfa or white clover any time this summer. They usually store from 20 to 40 pounds of honey from this plant per colony. It just puts them into winter quarters in the best of shape. Lots of my bees have as much as three frames of brood now. This little weed grows on the upland and in rocky out-croppings on land that is almost useless. It is a member of the buckwheat family. There are hundreds of acres of it near here, and in many places the ground is just covered with it. W. A. GRIDLEY.
Edgewood, Calif., Oct. 8.

Dry in Kansas

This has been the driest season Kansas ever saw, and the bees have not stored much honey. They started out well, but the hot winds dried up the flowers, and I had to begin feeding Sept. 1, but soon after rains came and vegetation sprang up like magic, and now they are working well on smartweed, dandelion, straggling sweet clover and other like flowers.

I had 30 colonies, spring count, and increased to 50, and they will go into winter in fair condition. W. L. POWELL.
Arkansas City, Kan., Oct. 10.

1200 Pounds form 18 Colonies

My honey crop was fairly good this season. I had 18 colonies, spring count, increased to 10, and produced 1200 pounds of extracted honey. F. A. WICKLEIN.
Percy, Ill., Oct. 7.

In Fine Shape in Kansas

I have 11 colonies to go into winter, 9 of which are strong with full brood-chambers, and I am leaving a full super of honey on each of them, to make sure that they have plenty of stores. The other 2 colonies are young ones of this year; one a fairly early one with a full brood-chamber; the other one was a late one, July, and has a fairly good supply of honey, but I expect to place for each of these a supply in supers on the hives.

I winter my bees out-of-doors in a shed, and wrap the hives well with burlap, and the tops with tar felt. The 9 original colonies have put an average of 100 pounds to the colony into the supers this season; but only one swarmed. W. D. STAMBAUGH.
Richfield, Nebr.

[We would advise you to remove the combs of honey from the supers for winter, and fill the empty super with forest leaves or some other good packing material. With full brood-chambers the colonies will have plenty of honey to last until spring. Early in the spring you could replace the full super combs, one by one if the colonies needed them.—EDITOR.]

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New York State Convention

The New York State Association of Beekeepers' Societies will hold its next annual meeting in Rocester, N. Y., Dec. 2 and 3, 1913. We expect to have the usual good time renewing old acquaint-

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ances and forming new ones, and learning from the advice and experience of those working in our chosen field. All those interested in beekeeping are urged to be present. You can't afford to stay away, as we often get advice free that will bring us many dollars.

IRVING KINYON, *Sec.*

Camillus, N. Y.

Statement of the Ownership, Management, Circulation, Etc.,

of the American Bee Journal, published monthly at Hamilton, Illinois, required by act of August 24, 1912.

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M. G. Dadant, Business Manager.

Sworn and subscribed before me this 2d day of October, 1913.

H. M. CUERDEN,

[SEAL] *Notary Public.*

My commission expires Aug. 25, 1917.

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Are you in doubt about a certain present? The Youth's Companion has proved to be one of the best that can be chosen. Perhaps you have not seen it lately, and are not quite sure. Then let us send you a sample copy or two. Suppose you ask for the issues containing the opening chapters of Arthur Stanwood Pier's fine serial story of life in a boy's school—"His Father's Son." If you look the paper over carefully, bearing in mind that there are 52 such numbers for a year's subscription of $2.00, we are sure you will say that a better present could not be chosen, whether for a young person or for an entire family.

For the year's subscription of $2.00 there is included a copy of The Companion Practical Home Calendar for 1914 andall the issues for the remaining weeks of this year, dating from the time the subscription is received.

If you ask for sample copies we will send with them the Announcement for 1914.

THE YOUTH'S COMPANION,
144 Berkely Street, Boston, Mass.

New Subscriptions Received at this Office

Classified Department

[Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

BEES AND QUEENS.

PHELPS' QUEENS are hustlers.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
1Atf 70 Cortland St., New York City.

QUEENS—Improved red-clover Italians, bred for business; June 1 to Nov. 15. Untested queens, 75c; select, $1.00; tested, $1.25 each. Safe arrival and satisfaction guaranteed. 1A1y H. C. Clemons, Boyd, Ky.

GOLDEN all-over Queens. Untested, $1.00. Tested, $3.00 Breeders, $5 and $10.
Robert Inghram, Sycamore, Pa.

PHELPS' QUEENS will please you.

FOR SALE—Choice Golden Queens that produce Golden bees equal to any.
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W. A. Barstow & Co., San Jose, Calif.

THE RUSH FOR PHELPS' queens has been so great that we will be unable to take care of any more orders this year. We have some of the finest breeders for next year that you ever saw. Give us your orders early. C. W. Phelps & Son,
Binghamton, N. Y.

SPECIAL—Golden-all-over queens that produce workers of the brightest kind. 5000 mated queens was my sales last season. Untested queens each 75c; 50, $32.50; 100, $60.00. Tested, $1.25. Select-Tested, $2.00. Breeders, $5.00 and $10.00. J. T. Dunn, Queen Breeder,
6A7t Rt. 3, San Jose, Calif.

GOLDEN QUEENS that produce Golden Workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1.00 each; Tested, $2.00: Breeders, $5.00 and $10.00.
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Guy Kintz, R D. 2, Richland Center, Wis.

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FOR SALE—No. 1 buckwheat comb, $3.60 per case; No. 2, $3.20; 24 pounds to case.
Joseph M. Elsbree, Waverly, N. Y.

FOR SALE—Well ripened buckwheat honey in 60-lb. cans, two to the case at 8½c per lb. Sample 10c, to apply on order.
M. C. Silsbee, R. D. 3, Cohocton, N. Y.

WHITE CLOVER HONEY, 24 sections to case, 8 cases to carrier. No. 2, $2.90 a case; No. 1, $3.25 a case; Fancy, $3.50 a case.
W. L. Ritter, Genoa, DeKalb Co., Ill.

FOR SALE—No. 1 white clover comb, $3.50 per case; No. 2, $3.00 per case. No. 1 fall comb, $3.00 per case; No. 2 fall, $2.50 per case. All cases have 24 sections, and 6 cases to carrier. Quirin-the-Queen-Breeder,
Bellevue, Ohio.

DEALERS and producers who buy honey, kindly ask for a late number of the Review, giving a list of members having honey for sale. Many carloads are listed in the October number. Address, 9Atf
The Bee-Keepers' Review, Northstar, Mich.

FOR SALE—Our crop of "Elite" white clover extracted honey. None better produced. Also, Raspberry extracted, blended with willow-herb, nearly as white as the clover, good body and flavor, 8c per pound. Sample of either free. Address,
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PURE RASPBERRY HONEY—Was left on the hives until all sealed and ripened. The quality is very fine; none better. The raspberry honey crop was very short this year. If you want some of this delicious honey better order soon. It is put up in new 60-lb. tin cans. Price, $6.00 per can. Sample by mail, 10 cts., which may be applied on an order for honey. Elmer Hutchinson,
Pioneer, Mich.

EXTRACTED HONEY—Best pure Illinois. White Clover and blends with Sweet Clover. Amber Fall and Spanish-needle grades. Also fine Western Water-white and Light Amber Alfalfa. All packed in 5, 10 and 60 lb. cans. Some in barrels. Samples and prices Free. Dadant & Sons, Hamilton, Ill.

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POST CARDS—15 high grade Colored, Embossed Xmas Cards, 10c.
Pearl Card Co., Clintonville, Conn.

FOR SALE—Empty second-hand cans, two cans to the case; good as new; 25c per case.
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4Atf Greenville, Tex.

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John Scruggs, Mont Eagle, Tenn.

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M. C. Silsbee, R. D. 3. Cohocton, N. Y.

A MERRY CHRISTMAS AND PROSPEROUS NEW YEAR to readers of the American Bee Journal, and lucky users of the Schamu Roller Entrance Bottom Board. My new catalog will be out April 1, 1914. Send for a copy. Dr. Chas. G. Schamu, Liverpool, N. Y.

HONEY AS A HEALTH FOOD is a 16-page booklet giving uses of honey in recipes and as a medicine. Just the thing to create a local demand for your honey. We print your business card on all orders for 100 or more. Prices as follows, postpaid: 50 copies 90c, 100 for $1.50, 250 for $3.00, 500 for $5.00, 1000 for $9.00. American Bee Journal,
Hamilton, Ill.

POULTRY

FOR SALE—Buff Orpington eggs, pure bloods: $1.00 for 15. Satisfaction guaranteed.
2A1y W. H. Payne, Hamilton, Illinois.

HONEY LABELS

THE NUMBER of enquiries coming in for honey labels has been so large that we have decided to put in a stock of these for the convenience of our readers. Should you be in need of anything in this line, send for a copy of our label catalog, which will be sent free, American Bee Journal,
Hamilton, Ill.

SITUATIONS.

WANTED—Position for 1914, all-around bee man; 25 years' experience. Best of reference. Will go any place. Prefer California or West. L. W. Benson, Nampa, Idaho.

Dr. Peiro will continue to give the readers of the American Bee Journal free advice regarding the subject of SURGICAL and MEDICAL treatment. Many have availed themselves of this offer. Return postage is all you need to send. Address, DR. PEIRO, 4536 Perry Street, Chicago, Ill.

American Bee Journal

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AMERICAN BEE JOURNAL, Hamilton, Illinois

HONEY AND BEESWAX

CHICAGO, Nov. 18.—Sales in the aggregate have been fair during the past month, but the supply is quite heavy, and prices are weak. It is difficult to obtain more than 15@16c per pound for the A No. 1 to fancy grades, and lower grades are more or less neglected, prices ranging from 1@5c per pound less according to kind, condition and color. Consignments have not sold readily owing to these conditions. Extracted is also freely offered with prices of the best grades of white ranging from 8@9c per pound, and ambers from 7@8c per pound, with the undesirable flavors difficult to market. Beeswax is steady and sells upon arrival at from 30@32c per pound, according to color and cleanliness. R. A. BURNETT & CO.

SAN FRANCISCO, Nov. 15.—The comb honey market is overstocked, and little or no demand at present, and prices have dropped accordingly. No. 1 fancy, 13@15c; No. 2, 10@12c; dark, 8@10c. Extracted, water-white, 9c; white, 7½@8c; amber, 6@7c; darker grades, 5@5½c. Beeswax, 30@32c per pound. Very little offered. JOHN C. FROHLIGER.

KANSAS CITY, MO., Nov. 10.—Receipts of comb honey are large; demand fair. Receipts of extracted not large; demand good. We quote as follows: No. 1 white comb, 24 sections per case, $2.75; No. 2, $2.50. There is a limited demand for light amber at the same price of white. White extracted, per pound, 8@8½c; amber, 7@8c. No. 1 beeswax, per pound, 30c; No. 2, 25c.
C. C. CLEMONS PRODUCE COMPANY.

CINCINNATI, Nov. 3.—The demand for both comb and extracted honey is not as brisk as it should be for this time of the year. We are receiving quantities of both comb and extracted honey. Fancy white clover comb honey is selling at 16c per pound. No 1 white is selling at $3.50 per case of 24 sections. Off grades do not sell. White clover extracted honey in 60-pound cans is selling from 9@9½c per pound. Amber grades are selling from 7½@8½c per pound, according to grade and quantity purchased. Beeswax is selling from $33 to $35 per hundred.
The above are our selling prices, not what we are paying. C. H. W. WEBER & CO.

BOSTON, Nov. 10.—Fancy and No. 1 white comb, 16@17c per pound. New fancy white extracted in 5-gallon cans, 10@11c. Beeswax, 30c. Pure white honey in barrels, 9c per pound. BLAKE-LEE COMPANY.

LOS ANGELES, Nov. 10.—The market on California honey has been inactive recently, on account of the failure of the sage honey crop and the scarcity of other fancy varieties in this State. We think this is largely accounted for by the fact that there has been plenty of other kinds of honey produced both in the western States and in the East. There is a car of fancy white orange honey still to be had at 9½@9½c, f. o. b. Los Angeles, and there are a few cars of alfalfa light amber honey which could be sold at about 6c per pound f. o. b. shipping point; also one car, possibly two, of fancy light amber mountain honey at about 7c. Outside of this small quantity the honey business in the extreme West depends upon the sweet clover and white alfalfa honey produced in the States lying just east of California. This is held now at 6½@7c f. o. b. shipping point.
There has been a lively demand for beeswax at prices higher than usual, and on this account the producers have sold rather freely. Eastern buyers are bidding 30c per pound and upwards f. o. b. California.
HAMILTON & MENDERSON.

CINCINNATI, Nov. 19.—The demand for honey is good. We sell fine table honey in 60-pound cans from 8@10c a pound, according to the quality and quantity. Amber honey in barrels from 5½@8c. Comb honey, the very fanciest we are getting, from $3.75 to $4.00 a case. For choice bright yellow beeswax we are paying 30c a pound delivered here. THE FRED W. MUTH CO.

INDIANAPOLIS, Nov. 18.—Honey is moving freely. Fancy white comb is selling at 16@17c; No. 1 white, one cent less. Finest extracted, 9@10c in 5-gallon cans. Beeswax is in good demand, and producers are being paid 32c, cash or trade.
WALTER S. POUDER.

DENVER, Nov. 19.—Our local market is well supplied with honey, and our jobbing quo-

American Bee Journal

tations are as follows: Strictly No. 1 white, per case of 24 sections, $2.70; choice, $2.57. No. 2, $2.43. Extracted, white, 8@9c; light amber, 7@7½c. We are in the market for beeswax, and pay 30c per pound in cash, and 32c in trade delivered here.

THE COLO. HONEY-PRODUCERS' ASS'N.,
Frank Rauchfuss, *Mgr.*

NEW YORK, Nov. 10.—The market condition of comb honey remains the same, and we quote fancy white at 16c, No. 1 at 14@15c, No. 2 at 13c, mixed and buckwheat at 10@11c, according to quality. On account of the somewhat short crop in the eastern States, a few cars of western comb honey have been sent into our market, and this in connection with the nearby crop is sufficient supply to meet demands. Extracted honey remains about the same. There is a fair demand for white clover which is selling at from 8½@9c, amber to light amber at 7½@8c, buckwheat at 7@7½c. Southern honey in barrels is selling at from 60@75c per gallon, according to quality with plenty of supplies.

HILDRETH & SEGELKEN.

EXTRACTED HONEY

Just received car New Utah Alfalfa Honey, **9 cents** a pound f. o. b. Kansas City, Mo. **C. C. CLEMONS BEE-SUPPLY CO.**
137 Grand, Kansas City, Mo.

BOOKS FOR BEE-KEEPERS

FOR SALE BY

AMERICAN BEE JOURNAL,
HAMILTON, ILLINOIS.

First Lessons in Bee-Keeping, by Thos. G. Newman, revised by C. P. Dadant.—Intended mainly for beginners. Nearly 200 pages, and over 150 pictures. Bound in strong paper cover, showing bee-brood in all stages of development from the newly-laid egg. This book contains the foundation principles of bee-keeping, as its name indicates. Price, postpaid, 50 cts.; or free with the American Bee Journal one full year if paid strictly in advance—by either new or renewal subscription at $1.00.

Fifty Years Among the Bees, by Dr. C. C. Miller.—340 pages, bound in cloth, and illustrated with 112 half-tone pictures taken by Dr. Miller himself. It is a good, live story of successful bee-keeping by a master of the subject, and shows with clearness just how Dr. Miller works with bees and produces tons of honey. Price, $1.00, postpaid; or with the American Bee Journal a year, $1.80; or given FREE as a premium for sending 3 New subscriptions at $1.00 each.

Scientific Queen-Rearing, as Practically Applied, by G. M. Doolittle.—It tells how the very best Queen-Bees are reared in Nature's Way. A good authority says: "It is practically the only comprehensive book on queen-rearing now in print. It is looked upon by many as the foundation of the modern methods of rearing queens wholesale." Price, bound in cloth, 75 cts., postpaid; or with the American Bee Journal a year—both for $1.50. The same book bound in leatherette, 50 cts., postpaid; or free with the American Bee Journal one full year if paid in advance strictly, by either new or renewal subscription at $1.00.

Biggle Bee-Book.—This is a very small cloth-bound, well gotten up book. Its size is 4x5 1-2 inches, and it was designed to be carried in the pocket of the amateur bee-keeper. It contains concise information regarding the best practice in bee-culture. An excellent book for use when a person has only limited time to give to bee-keeping. Price by mail, 50 cents; or with the American Bee Journal one year, $1.35.

A B C & X Y Z of Bee Culture, by A. I. & E. R. Root—Over 500 large pages describing everything pertaining to the care and management of the honey bees. It is a veritable encyclopedia on bees. 400 engravings. Bound in cloth. Price, postpaid, $2.25, or with the American Bee Journal, both for $2.75, or given FREE as a premium for sending five new subscriptions at $1.00.

A Modern Bee Farm, by Samuel Simmins. The author is a live English beekeeper. He has kept up with the progress in this line not only in his own country, but all over the world. His views are determined, but very well taken, and his points are made with an accuracy which is convincing. Cloth bound, 470 pages. Price, postpaid, $2.00, or with the American Bee Journal, both $2.75.

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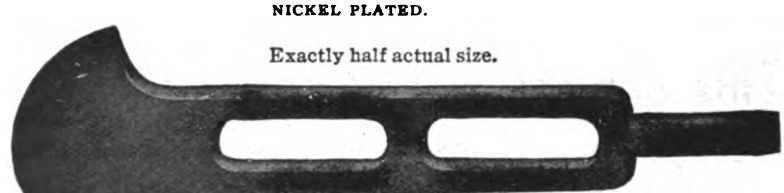

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American Bee Journal, Hamilton, Illinois.

American Bee Journal

ROOT'S POWER HONEY-EXTRACTORS

Our new catalog is full of information about these labor-saving machines. With the difficulty of getting competent help, the power extractors are being sold largely in this and foreign countries, and the present demand is far greater than ever before. Read what a California producer says in a letter to a disinterested party, which we were permitted to publish:

GENTLEMEN:—I should like to say a few words in favor of the ball-bearing Root Automatic Extractor, as I believe it is as near perfection as it can be. This machine runs so easily that a few turns to get it up to speed is all that is necessary; and the men, while using the No. 17, which I formerly had, could average only 1000 lbs. per day, while with this machine they can average 2000 lbs. with but one additional man. No apiary can afford to be without one of these machines.

I feel like congratulating The A. I. Root Co. for making an invention that is such a satisfaction, financially to the honey-producers interests. B. B. HOGABOOM, Elk Grove, Calif.

—HERE ARE A FEW MORE—

A word about the power extractor I purchased from you through H. L. Jones, of Goodna. I found it to work very satisfactorily, and it will do all it is claimed to do and more. I use the gasoline engine for several purposes besides driving the eight-frame extractor, such as driving the washing-machine for the lady of the house, and corn cracking and grinding. I consider it one of the best speculations I made in connection with the apiary. F. C. GOLDER, Pittsworth, Queensland.

Yours of the 16th, also the brake-band for power-extractor, came to hand. Thanks for sending it so promptly. This is my second season with the power extractor. I would not like to be without it now, even if I had only fifty colonies.
DAVID RUNNING, Grindstone City, Mich., July 1°, 1910.

I received the extractor I ordered of you some time ago. It arrived in good shape. I set it up and extracted 143 quarts of honey, sold it at 35 cents a quart. The extractor is just fine—does the work completely. F. D. KING, Athens, Ohio, Aug. 16, 1912.

The engine I got of you this spring has done fine. We ran it all fall, and never had any trouble at all.
V. V. DEXTER, North Yakima, Wash., Jan. 19, 1911

For Full Particulars See Our Catalog

The A. I. ROOT COMPANY, Medina, Ohio

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American Bee Journal,

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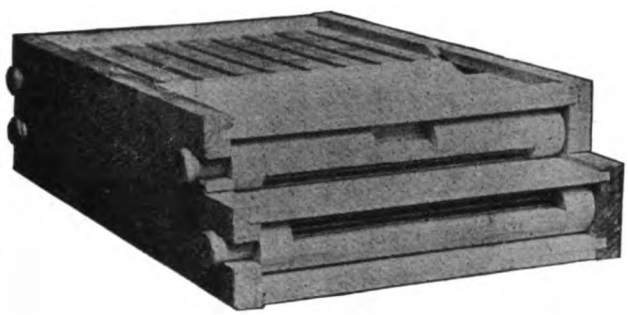

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